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ABSTRACT

Designed for Montessori teachers with little background in the plastic arts, this discussion points out that, while the Montessori program has many features that support creative development, presently, no art curriculum exists. The article indicates the limitations of Maria Montessori's ideas and attitudes about the role of art in the education of young children and offers very brief summaries of other theories of children's art (specifically, developmental, cognitive, psychoanalytical, perception-delineation, perceptual, and cognitive-developmental theories). Also provided are general guidelines for developing an art curriculum, summaries of developmental stages in children's artistic expression, advice about planning and preparing art activities, and suggestions concerning interaction with children in the course of art activities. A substantial portion of the article discusses basic concepts of graphic art (including line and form, color, composition, and texture and dimensionality); describes resources for art activities; discusses media characteristics and art techniques; and provides numerous lesson plans for drawing, painting, collage, printing, and modeling activities of graded difficulty. (RH)

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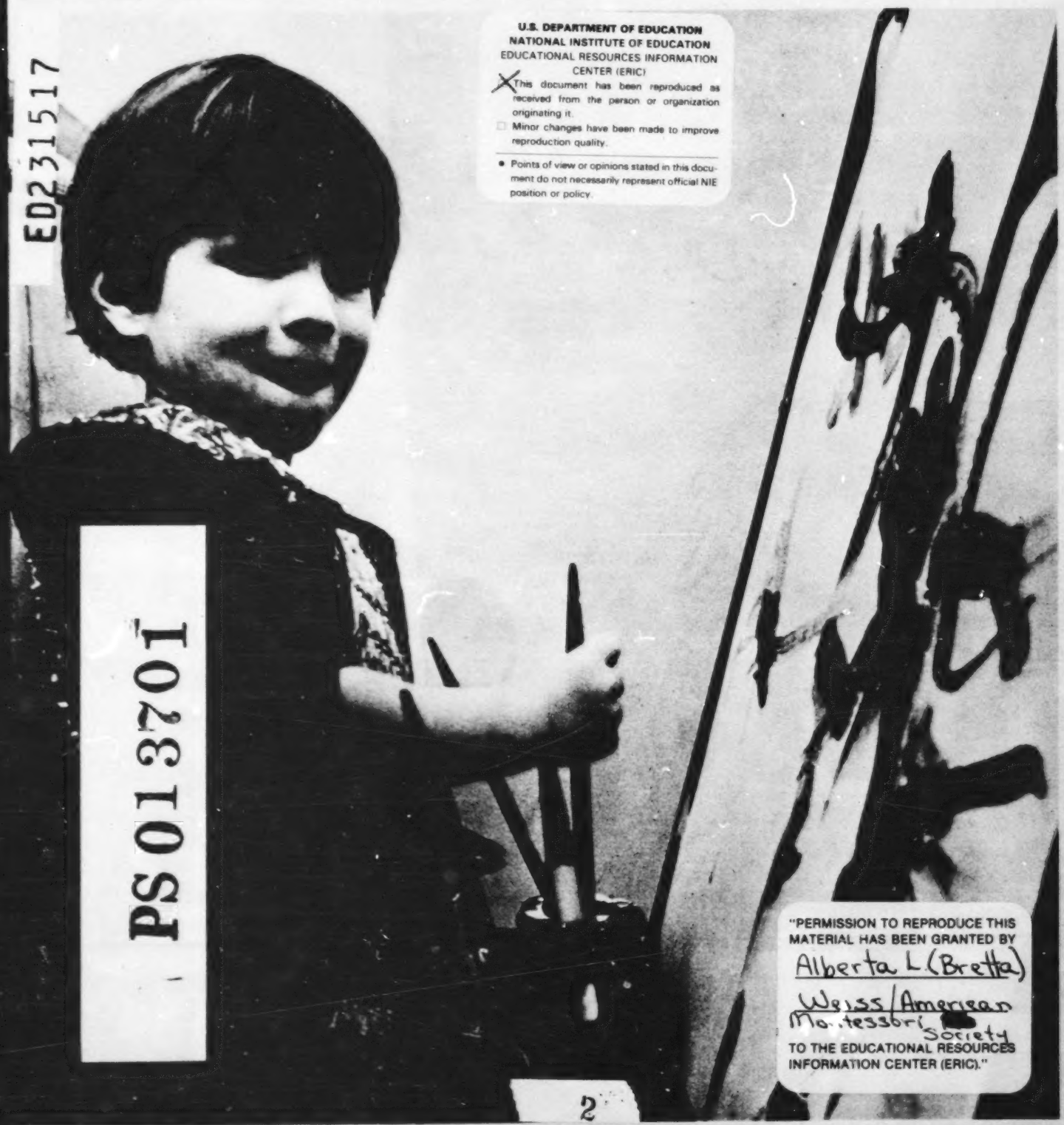

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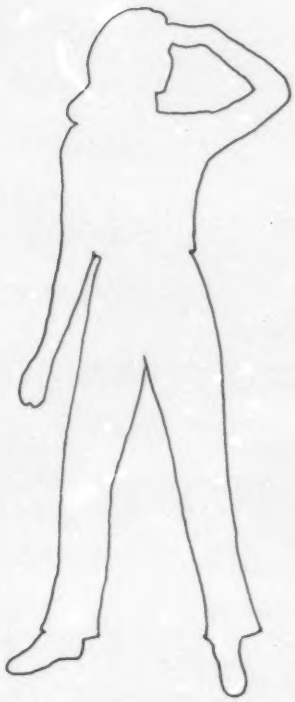

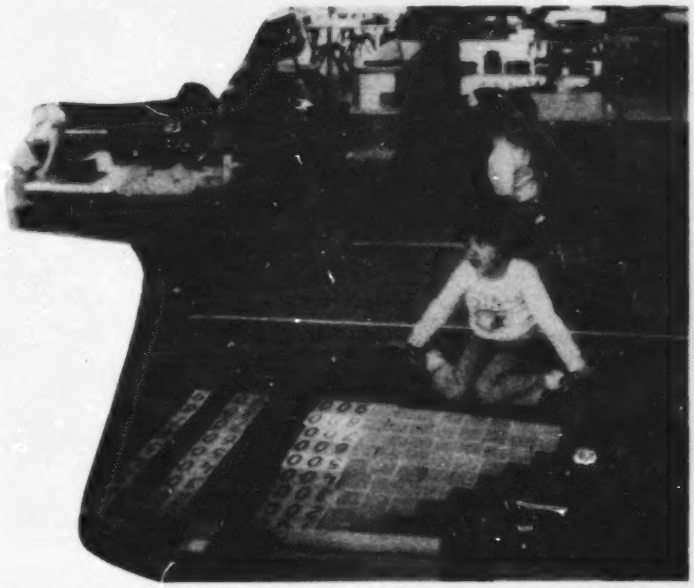

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Art and Montessori

By Joy Turner

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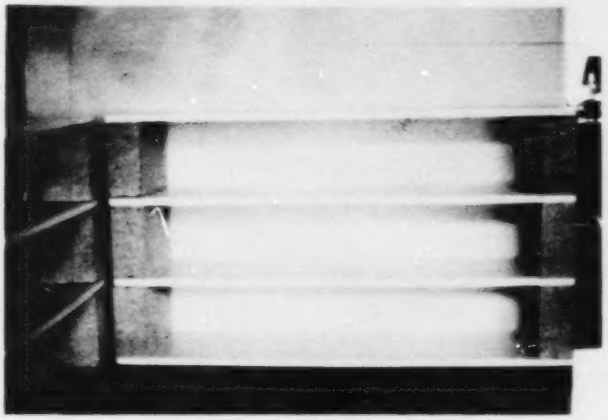

Ask a Montessori teacher about art experience for children, and you may get one of these responses: (a) a description of how well the school has developed its own art curriculum; (b) a vague gesture toward a shelf which contains at least some scissors and crayons, though perhaps much more (Oh, yes, we have art); (c) a defense of Maria Montessori's personal creativity and her appreciation for ART (especially the Sistine chapel); (d) no explanation, but a promise to include the topic for discussion at a parent meeting sometime; or (e) a flush of pinkness rising quickly from the collar, followed by a glib excuse and hasty retreat.

Why? Probably because there is no "Montessori art curriculum."

In Volume II of *The Montessori Elementary Material*, Montessori writes,

> We recommend for the training of teachers . . . a considerable artistic education in general . . . Our teachers . . . should be cultivators of the fine arts. For in our method art is considered a means to life. It is beauty in all its forms which helps the inner man to grow.[1]

Yet, as communicated by Montessori teacher preparation programs, Montessori traditions contain no "didactic apparatus" for art, no standard set of learning tools or prescribed experiences. This needn't mean the training of the modern Montessori teacher omits preparation in art, just that Montessori herself did not design this experience into her program in its own right. A search of her writings reveals very little about the subject—and some of these comments can be viewed as extremely negative. Seen in contrast to the American preschool tradition, where art activities often constitute the core of the program, Montessori's view of art may seem to contemporary teachers at best uncomfortable, at worst embarrassing, and in any case something of a mystery.

Montessori's View of Child Art

Through her writings, Montessori's closest approach to "art for art's sake" involves a goal we could legitimately call art appreciation. In describing the environment of the ideal Children's House, she tells us that

> round the walls of the [working] room are fixed blackboards at a low level, so that the children can write or draw on them, and pleasing, artistic pictures, which are changed from time to time as circumstances direct. The pictures represent children, families, landscapes, flowers and fruit, and more often Biblical and historical incidents. . . . In the sitting-room, or "club-room," a kind of parlor in which the children amuse themselves by conversation, games, or music, etc., the furnishings should be especially tasteful. . . . Many brackets of all kinds and sizes, upon which may be put statuettes, artistic vases or framed photographs, should adorn the walls. . . .[2]

One picture of which she was especially fond, Raphael's "Madonna della Seggiola," is described in some detail as an appropriate "emblem" of the Children's Houses, since

> they represent not only social progress, but universal human progress, and are closely related to the elevation of the idea of motherhood, to the progress of woman and to the protection of her offspring. . . . In Raphael's picture we see humanity rendering homage to maternity—maternity, the sublime fact in the definite triumph of humanity. In addition to this beautiful symbolism, the picture has a value as being one of the greatest works of art of Italy's greatest artist. And if the day shall come when the "Children's Houses" shall be established throughout the world, it is our wish that this picture of Raphael's shall have its place in each of the schools, speaking eloquently of the country in which they originated.[3]

We notice, however, that it seems to be Montessori's identification with "native pride" and her interpretation of the picture's message which account for its importance. If verification of goal priorities can be found by examining what the teacher expects of the children, then we must conclude that "art appreciation" was fairly low on Montessori's list:

> The children, of course, cannot comprehend the symbolic significance of the "Madonna of the Chair," but they will see something more beautiful than that which they feel in more ordinary pictures, in which they see mother, father, and children. And the constant companionship with this picture will awaken in their heart a religious impression.[4]

Montessori's earliest account of her work with normal children, *The Montessori Method*, describes several activities which could be categorized as art:[3]

- The "low blackboards" mentioned above;
- "Free design," in which the child is provided with paper and pencil and told that he may draw whatever he wishes to;
- "Design consisting of the filling in of outlined figures," line drawings of simple geometric figures and familiar objects, for which the child selects his own choice of colored pencils and later, of watercolor tints;
- "Free plastic work," in which the child models whatever he wishes with clay;
- A separate though brief chapter devoted to "manual labour—the potter's art and building," a program of handicraft which included instruction in the making of vases, as well as little bricks and tiles to be fired and used to construct miniature walls and houses; and, for children as old as five or six, use of the potter's wheel.

Despite her inclusion of these activities, Montessori's stated purposes focus on reasons other than artistic expression or exploration; she seems to expect no "educative result" at all. The activities are valued as "exercises of the hand" and for what they can "reveal of the child's capacity for observing [forms and colors] and his individual tendencies...thus helping [the teacher] to understand her children more fully." In explaining why she chose vases as a clay project for the children, Montessori touches on art in relation to cultural variation and history; but this seems only peripheral to cultivating in the children a more general appreciation for "the objects and constructions which surround them." This was not art for art's sake, then, but rather a tool to aid the teacher in diagnosis, and the child in social and motor development.

One teacher technique described by Montessori—asking children for verbal labels for their products, and often making a written label to accompany the object or drawing—has since been elaborated by others into the basis for a whole scheme of instruction in reading, the "language-experience approach." Yet providing children with the opportunity to make connections among graphic and verbal and written forms of expression was not the goal for Montessori:

> ...The teacher should ask the child what he wished to draw, and should write it underneath the design *that it may be a record* [italics mine].[3]

The criterion for assessment of the child's progress was the accuracy of his work in reflecting reality, and movement in this direction was apparently rewarded with access to a slightly wider variety of materials. For example, periods of the day were set aside, at least for older children, to work at the insets or outline drawings; and although

> the children select the colours and are left entirely free in their work...only those children who know how to keep the colour within the outline and to reproduce the right colours may proceed to the more ambitious work [i.e., with water-colours and more complicated designs].[3]

With representational art as virtually the only value, it is not surprising that Montessori's judgment of children's products seems rather harsh. From a mild description of first drawings as "unformed and confused" in the *Method*, she moves toward a rather devastating condemnation of children's spontaneous art work in a later book on the elementary level:

> The hideous drawings which are exhibited in the common schools, as "free drawings" characteristic of childhood, are not found among our children. Those horrible daubs so carefully collected, observed, and catalogued by modern psychologists as "documents of the infant mind" are nothing but monstrous expressions of intellectual lawlessness; they show only that the eye of the child is uneducated, the hand inert, the mind insensible alike to the beautiful and to the ugly, blind to the true as well as to the false. Like most documents collected by psychologists who study the children of our schools, they reveal not the soul but the errors of the soul.... The ability to see reality in form, in color, in proportion, to be master of the movements of one's own hand—that is what is necessary. Inspiration is an individual thing, and when a child possesses these formative elements he can give expression to all he happens to have.... Free drawings are possible only when we have a free child who has been left free to grow and perfect himself in the assimilation of his surroundings and in mechanical reproduction; and who when left free to create and express himself actually does create and express himself.... To confer the gift of drawing we must create an eye that sees, a hand that obeys, a soul that feels; and in this task the whole life must cooperate.[1]

Reading Montessori's description of children's art—any children's art—as "hideous drawings...horrible daubs ...monstrous expressions," we may get a mental picture of the rows of neat metal insets and carefully filled-in "designs" produced by her own pupils (within the outline and with the right colors)—and wonder (sadly) why she compares these with spontaneous drawings or paintings. They are simply not the same thing.

The Eye of the Beholder:
Understanding Montessori's View of Child Art

How can it be that Montessori, with her profound respect for the child's spontaneous activity as an expression of self, fails to accord the same validity and importance to spontaneous *art* activity? Why does her characteristic orientation

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toward the value of the child's process shift, with art, to evaluation of the product? Why did a person so gifted at discovering manifestations of development, through her insightful observations of even the smallest details of child behavior, make no attempt to identify a developmental continuum for drawing ability? And why did she limit opportunities for the child in this important area of human expression by excluding art as a curriculum in her environmental design?

To be understood, Montessori's position on child art must be examined in context—the context of her other ideas, her own education and tastes, her time and culture. And of course our own context is an influence on our understanding, too.

From the evidence of Montessori's writings it is clear that she considered knowledge of reality to be essential to the production of great art, indeed to any creative endeavor:

> The creative imagination of science is based upon truth.... This single fact has changed the face of the world. When man loses himself in mere speculations, his environment will remain unchanged, but when imagination starts from contact with reality, thought begins to construct works by means of which the external world becomes transformed, almost as if the thought of man had assumed a marvelous power: the power to create.
>
> ...Truth is also the basis of artistic imagination. The work of the intelligence is not limited to the exact observation and the simple, logical reasoning upon which great scientific discoveries may be founded. There is a more exalted world...the instinct to create the beautiful with his mind...which lifts man up from earth and transports him into a higher world...and from this instinct duly developed come all the vast treasures of art, scattered almost like crumbs of gold wherever there was an intensity of civil life, wherever the intelligence had time to mature in peace.
>
> ...Yet no one can say that man creates artistic products out of nothing. What is called *creation* is in reality a composition, a construction raised upon a *primitive material* of the mind, which must be collected from the environment by means of the senses.... It is necessary that every artist should be an observer.... The artist "imagines" his figure; he does not copy it, he "creates" it. But this creation is in fact the *fruit* of the mind which is rooted in the observation of reality....It is by refining his powers of observation that the artist finally perfects himself and succeeds in creating a masterpiece. The more perfect the approximation to truth, the more perfect is art.[4]

Despite her glowing prose on the subject, we might suppose that both Montessori's knowledge of art as a field of endeavor and her subjective understanding of the artist's creative process were very limited. Her own education had, after all, emphasized subjects little related to art; if Kramer's account of her medical studies is accurate, there would have been little time and energy to pursue such an interest. According to report, she did not particularly enjoy art activity, nor was she particularly good at it. (Could a person who has used a potter's wheel think children of five could manage it?)

> At the technical school...Maria took Italian literature, history and geography, mathematics, drawing and calligraphy... and did well in all her subjects although her highest marks were for conduct—she did rather poorly in drawing, in which she evidently found it more difficult to be attentive than in her academic subjects.[5]

For Montessori, a "good" picture must reflect reality with accuracy, a point of view she probably shared with most people of her time. Although the cubists in France and Spain and the futurists in Italy had begun the development of a trend away from traditional methods of portraying reality, Montessori was insulated by a busy life centered on other domains of interest; she was very likely unaware of the new styles of her contemporaries. The more extreme abstractions of the expressionist and surrealist movements did not appear until the mid-twenties, long after the publication of Montessori's major statements about art.

With a narrow view, by today's standards, and a limited subjective experience of "just messing about" with art materials, it is not surprising that Montessori found them relatively unimportant and made no special efforts to include a wider variety of art opportunities in her environment. To her pragmatic nature, the important specific preparations for creative work were refinement of the senses, control of the hand, a sense of order, and feelings of competence—things she had already built into her school design.

As for the exercise of "creative imagination," Montessori saw this as not only non-essential but even detrimental to a child's healthy development. The persistence of make-believe and fantasy in a child was simply his way of trying to meet his own needs in a sterile or hostile environment: "An adult resigns himself to his lot; a child creates an illusion." Reality was not only the best teacher, but a cure for the child's ills:

> It is "living among real possessions of his own" which calms the child, and assuages those desires which consume his precious powers in the vanity of illusion.[6] A child's return to his normal, natural state is connected with a single, specific factor, that is, his concentration upon some physical activity that puts him in contact with exterior reality...[6]

When a child's choice of color or form failed to match reality, Montessori apparently chose to consider the cause as immaturity of control, perception, or ability to observe—in her view, a lack of sufficient knowledge to enable true self expression. Unlike Lowenfeld[7] and Kellogg,[8] she did not postulate stages of development in child drawing or typical patterns in the use of space, form, or color, either because she did not perceive their emergence through the materials and limits she offered—or because she was simply unwilling to concede that a certain amount of scribbling and experimentation tended to precede representational ability.

Kramer gives support to the idea that art in school was not expected in Montessori's time and place.

> Critics accused Montessori of emphasizing the motoric and the realistic at the expense of the creative imagination and dramatic play. Her utilitarian position was felt by many to be too restricting to the child's mind. What they failed to see was that she had worked out her system in a culture in which ... less was expected of the school. [Its] function was "instruction"...or what Montessori called "pedagogy," a matter of intellectual training as distinct from *educazione*, upbringing in general, including what is transmitted outside of school by family, community, and society at large. School was expected to teach one all there was to know about how to read but not necessarily all there was to know about how to live. Italian children lived at home, usually amid a large family, indulged in many ways, including stories and play,

which Montessori would have thought unnecessary to introduce into the school curriculum. School was a place for the development of cognitive skills and a self-reliant character, not because these were the only things that mattered, but because the other things were taken care of elsewhere—in the home and to some extent in the church.... As for the games, singing, dancing, and drawing which critics found lacking in her system, all these existed in her schools; she did not dwell on them in her lectures because she couldn't conceive of a system of education without them.[9]

In our own time and place, however, child art in school *is* an expectation and, especially for the young child, is accorded value in and of itself (did Klee make children's pictures more acceptable?). Of five contemporary Montessori educators whose work has been published, one does not deal with art as an issue separate from creativity, on which she speaks from her own experience (Packard[9]); one restates and supports Montessori's position (Lillard[10]); two defend Montessori but describe additional activities and materials (Gitter,[11] Kocher[12]); and one advocates an expanded art program without describing it: Rambusch points out that Montessori

does not make a necessary distinction between purely manipulative activities and creative ones. Very young children enjoy the manipulation of paints, clay, etc. and frequently decide after the fact what it is they have produced, as opposed to children who consciously create by the intentional impression of their ideas on matter. Obviously, the ability to express oneself varies from child to child and from one developmental stage to another. It is certainly a matter of agreement that children should be exposed to artistic materials in order to manipulate them and create with them.... That there are latent creative powers in children, we know. That they deserve an opportunity to make themselves known, we know. Any school for young children must conscientiously make provision for this vital facet of expression.[13]

Survival pressures of "second wave" Montessori in America, as well as our own needs for Montessori herself to be right (or at least not wrong), may have prevented contemporary teachers from examining the issues presented here. Yet they are important, not from a need to validate Montessori's position, but because we must arrive at our own. What can an expanded art program offer to the child? And how does artistic learning occur?

Other Views

In her idea that creativity involves the synthesis of elements of reality in a new way, Montessori is certainly not alone. As Barron states in *Creative Person and Creative Process*,

Creativity may be defined, quite simply, as the ability to bring something new into existence.... Since human beings are not able to make something out of nothing, the human act of creation always involves a reshaping of given materials, whether physical or mental. The "something new," then, is a form made by the reconstitution of, or generation from, something old.[14]

Applied to curriculum for young children, this concept would seem to imply that the process of creativity—"a reshaping of given materials"—is an experience most readily available to children through access to materials they can reshape. This enactment of creativity on a physical level may not be possible without what early childhood people call "plastic materials," things like sand and water—and art supplies. Although much of the equipment found in a Montessori environment invites children to manipulate concepts contained within the materials, the materials themselves do not change. With the exception of experiences with water in the practical life area, a Montessori environment neglects materials the child can act upon and change, reshaping them into new forms, with a resulting sense of interest and mastery.

In her examination of art curricula and research, Seefeldt says,

Teachers of young children are likely to identify the goals of their art program in terms of helping children to express ideas and feelings, release emotions, explore new media, and foster creativity.... Art is often thought of as the glue that holds the program together. Social studies concepts, ideas from children's literature, and scientific concepts all find expression through art.... However, few teachers have as their goal the development of art as a body of knowledge as well as a series of activities.[15]

What the teacher thinks children are likely to get from art activity depends in part on the theories held about child art. Seefeldt identifies six types: developmental, cognitive, psychoanalytic, perception delineation, perceptual, and cognitive developmental. To this list (already enough to scare anyone), we add Meier's interactionist position, Read's conception of collective memory, and Edwards' hemispheric theory of art development. Because these viewpoints tended to emerge in consideration of what had gone before, they are presented in a more or less chronological order.

According to the cognitive theorists, the young child "draws what he knows"; his drawings are representative of his concept formation, increasing in detail, complexity, and accuracy as he gains in understanding and experience. First published in 1926, the Goodenough-Harris "Draw-a-Man" Test, which attempts to assess intellectual maturity through drawing, is an example of this theory in operation. Critics claim that the test is extremely susceptible to many other variables and the theory weak because it fails to explain some important points, such as artistic differences between children of the same intelligence, or the relationship between sensory experience and concept formation.

The interactionist view advanced by Meier[16] in 1939 as a result of his ten-year laboratory study of artistic aptitude argues that both nature and nurture are important: the child draws because his experience interacts positively to support his native talent. Meier identifies six factors that contribute most to artistic aptitude. Three are a function of heredity: manual skill, energy-perserverance, and intelligence; and three are primarily a function of environment: perceptual facility, creative imagination, and aesthetic judgment. The type of inheritance Meier refers to comes not directly from parents, but from the contribution of an individual's gene pool—for example, as revealed by a large number of relatives who were craftsmen, artisans, or artists. Critics of Meier's position fear its implications for education, namely the idea that art experience is wasted on all but the ones who possess this genetic endowment; although Meier stresses the importance of interaction, the focus becomes identifying

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the talented, rather than enriching the artistic environment of all students.[17]

In *Education Through Art* (1943), Read combines Jung's idea of the collective unconscious and Plato's notion of archetypes to develop his claims that the symbols of child art appear in all cultures, revealing both the common humanity of man and, for those who know how to interpret child drawings, the psychological "types" of individuals.[18] In this view, the child draws universal symbols from his unconscious memory. As a statement on art, children, and education, Read's work is acclaimed by critics as stimulating and scholarly, but they fault his hypotheses as vague, ambiguous and unsusceptible to scientific verification.[17]

The psychoanalytic theory assumes the child "draws what he feels"; art products are viewed as reflecting emotions and deeply personal (though unconscious) feelings. For example, several studies of children's easel paintings in the middle 1940's by Alschuler and Hattwick attempted to determine the relationship between the child's personality and the form and content of his paintings.[19] Although the theory has wide influence, as demonstrated by many preschool art practices (e.g., "tension release" through fingerprints or clay), by some psychological assessment and therapy procedures, and by a modest amount of empirical research, critics caution that children's art work cannot be used with confidence to predict behavior or personality.[15]

The developmental theory, based on the idea that children draw in accordance with the unfolding of a genetic program for total development, has been most widely accepted in early childhood education. Advising against direct instruction or any interference with children's personal expression, this approach receives detailed description by Lowenfeld (1947).[7] Kellogg (1967)[8] has focused on art produced by children under six because of her judgment that it is "self-taught," and therefore more valuable for understanding the origins of art. Based on her analysis of more than a million pieces of child art, she elaborates on the earliest stages identified by Lowenfeld and to some extent synthesizes the work with ideas expressed by Read and by Gestalt psychology. Although some of Lowenfeld's ideas now seem rigid and time-bound, many insights about children from his years as an art educator are still valuable; and his general sequence of stages has since been documented by others. Yet critics of developmental theory express concern for the sufficiency of its empirical verification, its neglect of content teaching and the articulation of objectives, and its passive approach in waiting for children to develop.

Perceptual theory comes from a Gestalt frame of reference, assuming that the child sees perceptual wholes (rather than parts) and tends to "draw what he sees." Arnheim, the chief expositor of this theory, claims the child must use his ingenuity to solve the problem of recreating a perceived object on a two-dimensional paper, eventually resulting in a genuine and impressive invention.[20] Critics point to a lack of systematic data and an inadequate explanation of individual differences.

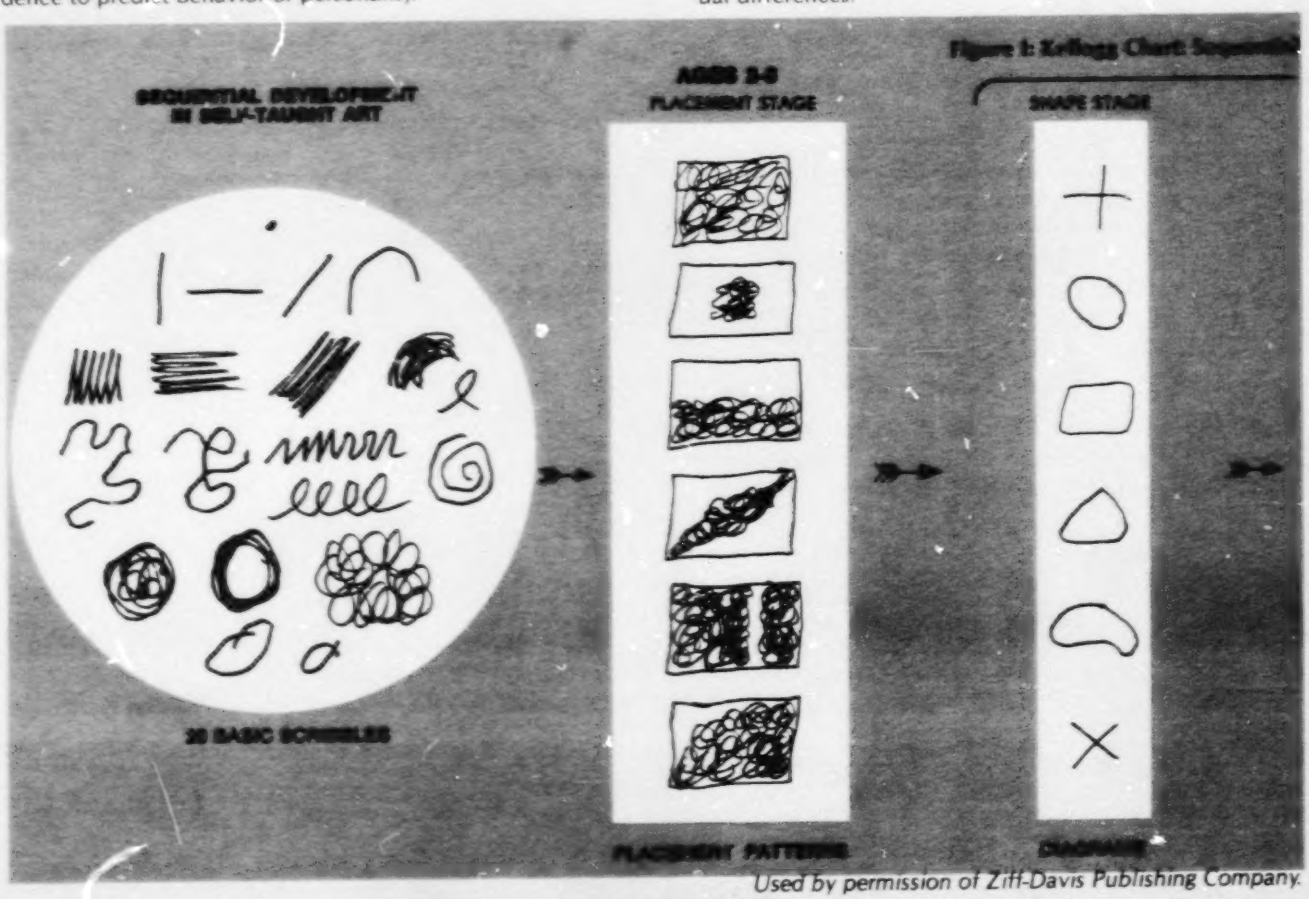

Figure 1: Kellogg Chart: Sequential

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The perception-delineation theory of McFee[21] considers art education a multi-faceted phenomenon and identifies four factors on which it is based: the readiness of the child; the psychological environment in which he is to work (degree of threat; rewards, punishments); information handling/organization skills; and delineation skills (manipulation of media, creative and design capabilities). The capable teacher of art needs a highly developed understanding of both individual and cultural living and their relation to learning. McFee's ideas leave the way open for virtually all possible factors, whether internal or external, to influence child art, thus subjecting her position to ambiguities, conflicts, and difficulties of operational definition; yet the contribution of such a broad view may lie in the attention it calls to the need for systematic and experimental studies of the factors identified.[17]

The cognitive developmental theory results from implications of Piaget's ideas relating a child's art to his concept of object permanence. With this ability to invoke images from past experience as representational symbols, the child moves through stages—from fragmented images at age two, toward an understanding of the relationships of objects to their spatial coordinates at nine or ten. Brearley[22] relates this development to two types of experiences—the sensorimotor, and those which bring content to the child's expression. She recommends rich, varied, but related sequences of experiences leading to increasing depth of understanding.

Based on a set of ideas we might label as the hemispheric, or right-brain theory, Edwards presents both a theoretical formulation and a program of instruction in her book *Drawing on the Right Side of the Brain*. Starting from a developmental position, her ideas unify many elements from other theories as well, enlisting support from recent research on hemispheric specialization of the brain. The results of research by Sperry, Levy, and others seem to demonstrate that the two halves of the brain function in quite different modes, with the left characterized as verbal, analytic, symbolic, abstract, temporal, rational, digital, logical, and linear; and the right as nonverbal, synthetic, concrete, analogic, nontemporal, nonrational, spatial, intuitive, and holistic. The two modes seem to be complementary and suited for accomplishing different kinds of tasks. In normal persons, communication between the two sides of the brain via the corpus collosum, a large bundle of connecting nerve fibers, melds or reconciles the two perceptions and preserves our sense of personal unity. Motorically, there is crossover in the brain-body connections: the left hemisphere controls the right side of the body, and the right hemisphere controls the left side.

Edwards observes that the beginning of adolescence (the stage of realism in art development) is a crisis period; seemingly compelled from within to make their pictures match reality, most children become discouraged and give up, bringing an abrupt end to their artistic development in terms of drawing skills. Edwards thinks the cause is that previously stored verbal and conceptual knowledge—which is useful in other contexts—blocks visual perception. The problem, Edwards claims, is not in drawing, but in seeing. To draw realistically, to see the thing-as-it-is, requires the suspension of conceptual knowledge, it requires the patient study of de-

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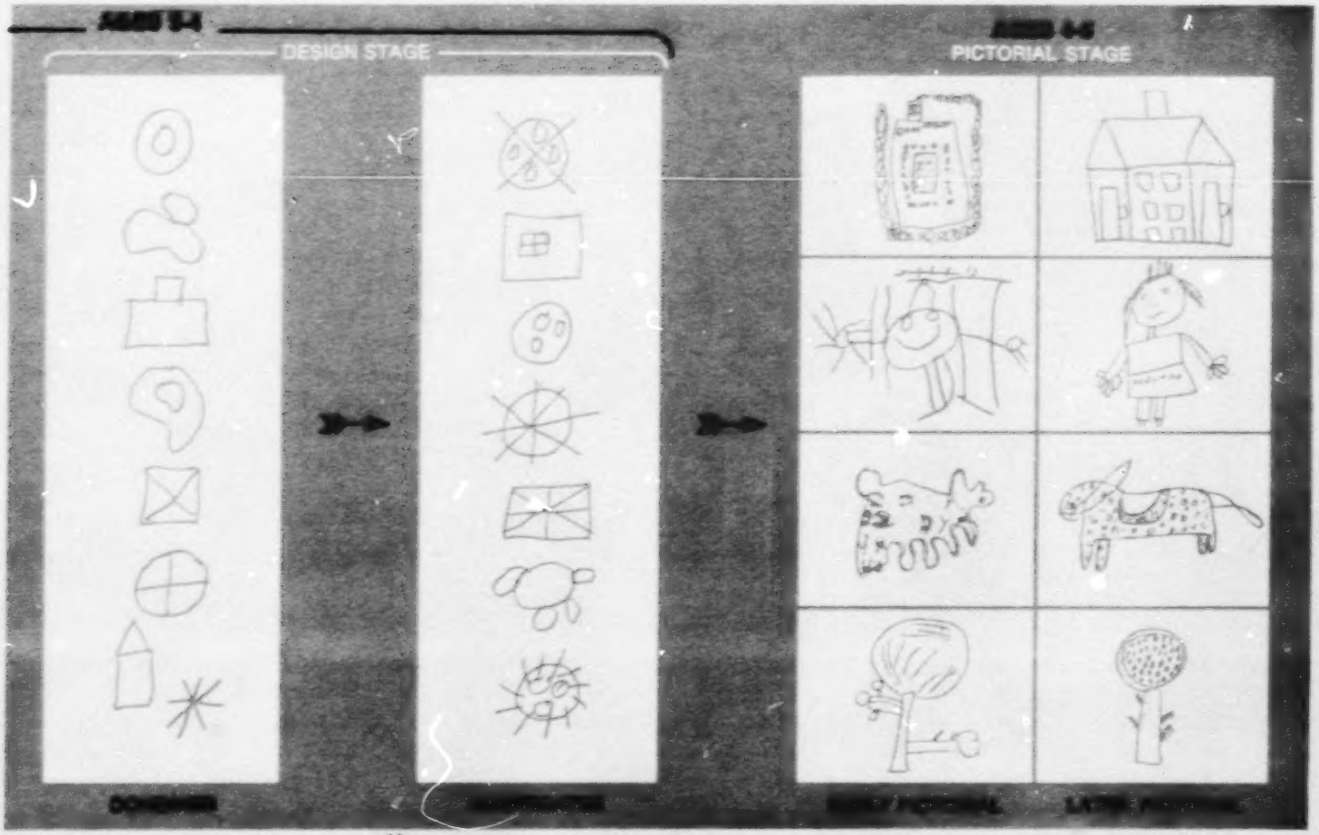
Development in Self-Taught Art



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tails and the holistic perception at which the right hemisphere excels. The left hemisphere tends to process things rapidly, assign symbols, and move on; it also tends to be dominant and bossy, Edwards tells us. Drawing, at least beyond age ten or eleven, is a matter of learning how to make a shift in consciousness from left-mode to right-mode, and Edwards has designed her program of instruction around a series of drawing tasks that assist people in learning to control this shift. But the big payoff, according to Edwards, is that

> In drawing, you will delve deeply into a part of your mind too often obscured by endless details of daily life. From this experience you will develop your ability to perceive things freshly in their totality, to see underlying patterns and possibilities for new combinations. Creative solutions to problems, whether personal or professional, will be accessible through new modes of thinking and new ways of using the power of your whole brain. Drawing, pleasurable and rewarding though it is, is but a key to open the door to other goals.[23]

Although Edwards' claim—that right-brain involvement promoted by drawing transfers to other kinds of creative work—has yet to be established, her consideration of brain research does seem to explain some things others have observed about art. The developmental theory receives some support here: the hemispheric connection through the corpus callosum begins to function effectively around age four or five,[24] coinciding with the appearance of the child's ability to make pictures; the connection matures by age ten or eleven, the "crisis" point at which many become dissatisfied with their products and stop drawing. (Only a few, according to Edwards, discover by accident how to shift to the right-mode, and continue to advance in their drawing skills.) There is also support for the psychoanalytic interpretation of art: if both drawing and the perception of relationships and intuitions are right-brain specialties, then the artist's picture probably does tell us something about both his own feelings and any developmental Gestalts humans hold in common. Although her discussion of split-brain research underplays the left hemisphere involvement in our detailed perception of parts of the whole, the rapid and dramatic improvements in drawings made by Edwards' students make a convincing case for her approach with adults.

Research

Empirical research on child art is meager, but when coupled with the theoretical positions it does have some implications for the development of art programs:

- Media can influence the child's artistic expression. For example, children tend to "fill more space" and reveal more emotional indicators with crayons than with pencils, include a similar amount of detail with both media, but execute more differentiated drawings when they have previous experience with pencils. In easel painting, however, the use of narrow brushes rather than wide produces significantly more detail, design, and complexity. The continual introduction of new media, especially when teachers don't know how skills can be developed, deprives children of the opportunity to gain greater skill and proficiency.
- Some teaching techniques can increase children's art development. Simple discussion of children's art products; opportunities for practice in visual discrimination; instruction aimed at increasing awareness and incorporation of environmental qualities (texture, for example); and "motivating discussions" supported by visual aids, firsthand materials, and sensory experiences—all have been shown to have positive effects on children's artistic concepts and expression.
- There is a strong relationship between art education and achievement in general. Research findings suggest the following: children's reading development can be improved through art lessons that stress the inclusion of details; art is a valuable tool for increasing children's self-concept, verbal skills, and perceptual abilities; school activities in the arts are indispensible for "humanizing" the curriculum, aiding students' sensitivity to the qualitative aspects of their own experiences, their exploration of ways professional artists develop their own ideas, and learning to use their own creative resources effectively.

Conclusions

Obviously we can find many things about a Montessori environment which support creative development: the inclusion of many concrete objects to stimulate interest and involvement; an emphasis on the sensory aspects of experience; the opportunity for nonverbal modes of knowing (for example through movement, the silence game, minimized teacher talk and direction); and encouragement for the development of precision in both perception and motor control.

Yet, in terms of what is possible for art development, some things are missing: an attitude that values art experience in its own right as a body of knowledge worth communicating, and a systematic approach to a wide variety of art skills and media for the child to explore freely.

Goals: Process *and* Product

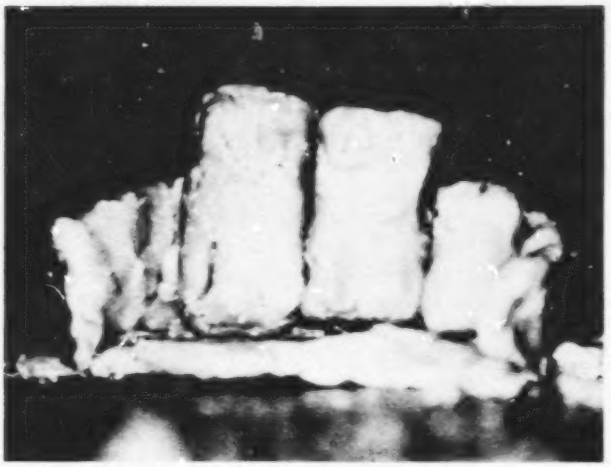
One way to organize our goals for art education is to consider that understanding and knowledge of art come about through contact with both its processes and its products.

In a process approach, opportunities for the child to experience and explore media and to develop skills are presented in an open-ended way, so that expectations about the end result (the product) are left general and unspecified. While he is deriving pleasure and satisfaction from this activity which allows him to reshape matter in some way, the child can observe properties and effects, grow in sensory awareness, develop coordination and control, and learn about techniques, tools, and responsible uses of equipment. Even if this activity culminates in the creation of a preservable product, the child may later forget it or throw it away.

A product approach calls for the child to focus his intention, whether by considering the relationship between technique and result, analyzing and making decisions to solve a particular problem or accomplish a certain task, or by employing language to interpret and expand upon other forms of expression. A product approach often provides models to stimulate and broaden interest; its structure may require a specific skill or technique—or a synthesis of several. Some-

times this approach is used to support or integrate learnings from other areas, reinforcing concepts through concrete experience; it may provide opportunities for social competence and participation, as in contributing to a group project. Whatever its form, a product approach stimulates the child to apply his knowledge and past experience.

An art program that incorporates both approaches can be appropriate for children from preschool through the elementary level, and seems necessary to a full appreciation and development.



"The Family on the Sofa," by Jane, almost eight, whose little sister is strangely absent from the sculpture.

THE TEACHER'S ROLE:

Knowing About Art

To most teachers, neither specialists in art nor interested in becoming so, the prospect of mastering the content of this body of knowledge in even a superficial way looks overwhelming. To develop expertise in the heritage of art will, obviously, require many hours of study; to acquire a depth of experiential understanding may be impossible. Must we ourselves become artists and historians in order to provide children with an artistic education?

The answer would seem to be yes—to some degree. Recall the evidence from research on the brain that we are capable of two kinds of knowing. In transmitting ideas about any subject matter, the analytic, left-brain kind of knowing plays a part in helping us gather, evaluate, and organize information and experience into a coherent, sharable form. But with aesthetic experience, depending as it does on our senses and our internal, personal response, it is the intuitive, right-brain kind of knowing that enables us to communicate a sense of that "playing with possibilities" so necessary to the creative process of discovering and working out an idea. To communicate the content of art in an effective way, we must have both kinds of knowledge—the logical and the intuitive.

Logical knowing can be gained from lecture courses, books, or articles such as this one, which attempts to develop a framework for curriculum that unifies the teacher's thought and enables purposeful use of the vast amount of material written with the "cookbook approach" to art for children.

The content of art as a body of knowledge can certainly be organized in many different ways. As teachers of young children we want to offer children experiences that involve them with art materials and processes; we want to communicate something of the art heritage; and we also hope to offer these experiences in a way that supports an increasing awareness of the more general and abstract ideas that relate art to other experiences in life. This is no easy task, and we must find answers to many questions. How can we present these three kinds of knowledge in a coordinated way, rather than as isolated events? Which experiences are most valuable to children? How can we be sure an experience offers value? Can we integrate art activities with the curriculum we already have without disturbing the balance? Can we structure art activities without destroying either the child's spontaneity or the order and cleanliness of our environment?

Because children under twelve are still developing, it seems appropriate to organize our program on the basis of process, relating more product-oriented activities as the children want and seem ready for them. To insure their exposure to a wide range of content, we can base our framework on the primary disciplines or *modes* of art activity—drawing, painting, collage (separating and joining), shaping, and printing, moving toward a product orientation with mixed media and handicrafts.

Within each mode or form we can identify a set of potential, sequenced lessons a teacher might share with children, focusing on three types of learning about art:

- The technical, which includes consideration of media, procedures, skills, and techniques;
- The conceptual, which considers potential relationships between the particular form and basic elements of all art (e.g., color, line, composition, dimensionality);
- The contextual, consideration of the heritage and cultural connections.

As we shall see, this kind of knowledge can be compiled by others and applied judiciously by a nonspecialist teacher whose familiarity with the content of art is very limited.

Intuitive knowing obviously requires a different sort of experience and commitment from the teacher. As Montgomery puts it,

> Participation in art has a special power to call forth the quality of individual response and identification. While finding new aesthetic possibilities in the world around us, we also discover new capacities within ourselves for enjoyment and spontaneous behavior. And these capacities improve our companionship with children in their discovery of themselves.[25]

One way to start "participating in art" is to take a survey course focused on exploring media and techniques, often listed in college catalogues as "Introduction to Art Materials." Another way is to locate a well planned "do-it-yourself" book and really do what it says (see suggestions in the reference list).[26] And of course it goes without saying that the teacher should always try out any project before presenting it to children—the best way to generate enthusiasm and the ability to anticipate both difficulties and delights.

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Even though participating in art may feel foreign to you at first, remember that in childhood you went through the same stages of artistic development that the children in your class will pass through; you already have a history as an artist.[2] Since these developmental stages are the third kind of knowing about art that can be helpful to the teacher, here is a summarized version of your history compiled from the descriptions of Lowenfeld, Kellogg, and Edwards.

TWO TO FOUR YEARS: SCRIBBLING—from placement to shape to design. Even before you are quite two years old, you probably discover that you can make marks on paper with a pencil or crayon. Your delight and wonder, as the paper records a variety of your spontaneous directional muscular movements, leads you to experiment; and rather quickly (Lowenfeld says within about six months), you develop some coordination between your motor and visual development. Kellogg tells us that by the age of two you can make all twenty of the Basic Scribbles and arrange them spontaneously in some of the seventeen different placement patterns she has observed in child art. You begin to notice forms which result from the location of your scribblings on the page, and by age three you are able to draw about six kinds of these implied shapes as single outlines or diagrams: you have reached what Kellogg calls the *shape* stage.

Right away you move on to the *design* stage, putting together two shapes (a combine) or three (an aggregate). Gradually you realize that certain objects resemble your drawings, and you give names to your scribbles ("That's daddy" or "my dog" or "house"). Up to this point you may not have cared what color you use, as long as the marks show up well. If someone gives you a chance to use paint, you probably get carried away with color and cover the whole paper with the same one; then you may cover that with a different color—and so on, ending up with a thick purplish-black blob that cracks when it gets dry. Occasionally, you enjoy the colors and textures of assorted collage materials. With clay, you've been content to pound it and beat it, then roll it into balls or coils. At about the same time you start naming your scribbles, you start calling your lump of clay a car or an airplane (usually with accompanying noises). But once you start naming, you have made what Edwards calls "the uniquely human leap of insight which is the foundation for art"—your marking (or lump) has become *a symbol that stands for something out there in the environment.* By age three and a half, your favorite form is probably a circle; with slight variations of added lines, you turn it into something you call a human being, sun, flower, cat, etc. Now you like to use colors to mean different things, although you don't usually choose the colors to reflect those of real objects.

FOUR TO SEVEN YEARS: PICTURES. Now that your mandalas and suns have begun to look like objects adults can recognize, you try out many new ways of drawing the same thing—still keeping the aesthetic balance of the previous design stage. This is an exciting, experimental period; through trial and error, you eventually work out favorite images or schemas, repeating, refining, and adding details to them as time goes by. Your "basic human," which started as a circle-face with legs, develops symbols for arms, hands, fingers, and clothes. These figures are often wearing hats—not, Kellogg says, because you see this around you, but because aesthetically something is needed on top to balance the legs! You discover that moving the ears to the top of the head makes your figure into an animal. Variations on designs made up of squares and rectangles become houses and other buildings, trees, cars, boats, planes, rockets. You tell stories and work out problems with your pictures, sometimes expressing your feelings with great power. At first the space you represent in your drawings is very personal and subjective, showing the objects you've noticed in your environment without much relationship to each other. By age five or six you develop a set of symbols to create a landscape—ground at the bottom, sky at the top, colorless "air" in between, a house (always with a doorknob, says Edwards), perhaps a chimney, clouds, sun, flowers, a tree. Whatever the symbols you settle on, your landscape is endlessly repeated and tends to become fixed in your memory as a whole image, with a composition that seems exactly right. Completing it each time brings a real sense of satisfaction. You still choose a color more because you like it than for any other reason, but you are discovering relationships between your own feelings about color and a harmonious organization of it on the page. You enjoy repeating your favorite schemas with thick tempera and a stiff brush. Even with clay, you search for a definite form concept in a third dimension.

SEVEN TO NINE YEARS: FORM AND SPACE. Your human gestalt has a head, body, arms, legs, features, and maybe even a neck, although you still draw them with geometric lines which would lose their meaning if separated from the whole. Your schemas mastered, you proceed to deviate from them intentionally, in order to express your ideas and feelings—by making important parts bigger, leaving out parts you consider unimportant (or those you don't want to think about), or by changing your symbols to show significant parts. Your greatest discovery is that you are related to your environment and things are related in space, which you express by placing everything on a baseline—a reflection, per-

haps, that you are moving beyond egocentrism. Sometimes you show objects "folded over" in space—a box turned on its side to reveal what is inside, or the other side of a street upside down to illustrate its opposition in space. Your picture may show the same space at more than one time, as in a sequence of related actions. Or you may use an "X-ray picture" to show the inside and outside of something at the same time—your building may seem to have glass walls, or you may give us an ant-farm view of something underground. You tend to assign a color to a particular object and repeat it, reaching general conclusions such as "grass is green, sky is blue," but still not reflecting the alterations and fine differences in color that occur in nature (your sky will stay blue even if it is raining in your picture). Your teacher may notice differences now in the way clay is used by children in your age group: some pull out features or parts of a figure from the lump, while others construct the parts separately and then fasten them together. You enjoy using all sorts of art materials now, especially natural things like twigs and pebbles. You have found your concepts of form, space, and color and continue to use your active knowledge of the world to add more detailed characteristics.

NINE TO ELEVEN YEARS: COMPLEXITY. Lowenfeld describes this stage as "the dawning realism: the gang age," a time of greater self awareness and of laying groundwork for the later ability to cooperate and work in a group. You try for greater realism through more detail in your art work, showing more concern for "how things look" than for where they are; these drawings seem less organized and confident than those of early childhood. Boys begin to draw cars, war scenes, and "adventure" pictures; girls tend toward tamer things like flowers in transparent vases, quiet landscapes, and girls, girls, girls (pretty and fashionable, often with hands out of sight because, Edwards quotes, "hands are hard to draw"). Cartooning becomes a favorite form, much admired by peers even though (or because) adults may consider it tasteless or even grotesque. Though still far from a visual representation, your drawing of both people and landscapes moves away from the symbolic and geometric toward a more naturalistic expression; now sky comes all the way down to the ground, opening the way for your conciousness of overlapping (where one object partially covers another, as when a tree growing from the ground covers part of the sky). "Folding over" and X-ray drawings disappear (you criticize them as unnatural); there is more relation between color and object and an awareness of tone differences. A new interest appears in exploring other qualities of materials, in decoration, in crafts, in invention with media and technique.

ELEVEN TO THIRTEEN YEARS: CRISIS. Your attempts at realism in drawing may leave you disappointed and discouraged, if not downright dejected. You may even fall victim to "dyspictoria" or "dysartistica" (Edwards' terms for the art equivalent of dyslexia) and abandon art forever. You have arrived at a crossroads in your artistic development. Already we could classify children of your age into two groups, which Lowenfeld calls the visually minded, able to concentrate more on the whole and its changing effects, and the nonvisually minded, concentrating more on the details. At this stage the visually minded child discovers depth, the effects of light and shadows; he is able to see in the way an artist sees, and the results he achieves in translating his awareness into more realistic work encourage him to continue his efforts, continue learning. The nonvisually minded child seems to regress, often returning to the same kind of space representation as the baseline stage; he seems to concentrate more on the expression of the self and the emotions resulting from it, drawing environment only when it has emotional significance for him. Two different approaches to color, design, and even clay work show up at this time, though some children use elements from both styles. Edwards would probably say that Lowenfeld's "visually minded child" has accidentally discovered the secret of how to shift to the right hemisphere mode of seeing, while the "nonvisually minded child" stays stuck in the conceptual, symbolic, verbal style of his dominant left hemisphere, which prevents him from seeing things clearly enough to draw them. If you are one of the lucky few, you will probably go on to discover the "happy accidents" of watercolor that most easily permit the portrayal of color and effects in nature, the gradual shift from modeling to sculpturing and pottery in your use of clay, and the increasing identification with professional artists as you explore many materials. Your art may ease the psychological crises of adolescence as it becomes a satisfying expression of your total being. If, however, you become one of the dysartistic majority, this avenue of personal resolution becomes closed to you; no matter what level you may achieve in other areas of your life, you will still draw like a child, with the same feelings of self-criticism and embarrassment you had when you were twelve.

Planning and Preparing

Matching activities to the children's interests and capabilities is probably the most important key to success with an art program. The teacher's knowledge of development can assist in making initial decisions about what to provide, and observation of the children's responses then helps to determine what to add and when. Starting from scratch—or from a random collection of production-type activities and few other resources, it may take several years to build a program that is truly comprehensive and integrated, to develop teacher skills and adequate materials. Because of this, planning by the year is a reasonable approach. If the teacher can decide early in the term on the focus for efforts and set a timetable for preparation that is not overly ambitious, the task of gathering and organizing resources can be programmed effectively. If several teachers in a school share a plan, the workload for each can be reduced.

The environmental requirements for a good art area are not different from those of any Montessori classroom: the space should offer order and organization in support of the child's freedom of movement and concentration. In addition to shelves for storage of materials, an art area needs a specified place for drying—both flat space and hanging space, such as a small folding clothesline rack or parallel floor-to-ceiling lines a foot apart. Somewhere in the room (or school) there should be a display space for those who choose to

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share their work, such as a low bulletin board with a supply of posterboard "frames" for standard paper sizes and, for three-dimensional objects, a "display case" made from an aquarium or even a painted cardboard box. A hallway or entry area often makes a good location for displays. In addition to display space for children's art, there can also be a "Beauty Corner"—a place where newly arrived treasures can be "honored with a favorable background and freed from cluttered competition."[23] Whether leaves, ribbons, or a stuffed bird on loan from the museum, things of beauty may be enhanced (along with children's exhibit skills) by a deliberate setting—made possible by a few colored cloths, blocks or boxes, and a screen or pegboard to fasten things on.

A variety of work spaces should be available: tables or defined floor area for "working flat" to draw, paint, collage, or print; for moist clay, a specified area with protected floor, a table or stand one can walk all the way around, and immediate access to water for washing hands; a place on a wall or fence to post mural-sized paper. If a one-person easel is used, it should be stocked with very thick paint to minimize runs and drips, be slanted outward at the bottom, and equipped with spring clips or clothespins that make it possible for a child to attach the paper independently. A stable location with a protected floor, adjoining table for storage of easel supplies, and nearby cleanup tools are also desirable. If space is at a premium, a folding, tabletop easel may make more sense.

The materials and activities to be organized will be of three types: individual and group experiences aimed at exploring media or making something, resources for presenting cultural or thematic information, and teacher-initiated activities designed to provide varied experiences of the same thing (and perhaps to promote hemispheric shift).

Like every other material in the environment, a well planned art exercise is simple, clean and attractive, and well organized. It isolates a difficulty and is part of a sequence of activity that builds upon the child's previous knowledge or experience. Its presentation design identifies points of interest which stimulate attention and purposeful movement and provide keys to success. Through the limits it sets, the procedural structure recognizes the principle of control of error and includes restoring the cleanliness of the environment as a final step.

Resources for presenting cultural or thematic information are discussed in the program section on "Contexts."

Although a repertoire of complementary activities is something that must be explored and developed according to the abilities of both teacher and children and the resources available, the basic idea suggests that the teacher make it a priority to find at least two approaches or treatments for the same material—movement as a response to visual stimulation, for example, or verbal discussion of one's art product, or painting to music. According to Eisner, children's art work shows greater detail and ingenuity after an opportunity to role play, such as acting like a wave crashing on the shore or a bird lofting through the sky. Montgomery also suggests this "imaging" technique for exploring clay, and Edwards gives an example for making a tree a multimode experience:

> Instead of merely naming a tree, for example, try also guiding your child through an exploration of the tree both physically and mentally. This exploration may include touching, smelling, seeing from various angles, comparing one tree with another, imagining the inside of the tree and the parts underground, listening to the leaves, viewing the tree at different times of the day or during different seasons, planting its seeds, observing how other creatures—birds, moths, bugs—use the tree, and so on.[25]

One last set of considerations in planning relates to time—and timing. Especially with the child under six, who "moves to the beat of his own drum," short time blocks and inflexible schedules work against positive outcomes of art participation; a child who knows that he can complete an activity without interruption is more likely to develop a concentrated interest in it. An opportunity to use the same material on a daily basis seems desirable; at any age, access to the same art material over a sufficient period of time can be a critical factor in skill development, and ultimately in self expression. Only when the characteristics of a medium are understood and the rudiments of its control mastered can the focus shift toward expressing something. The hemispheric theory tells us that access to the right-brain mode produces artistic accomplishment and that one subjective sign of this state is a sense of timelessness; it's the left brain that watches the clock.

Interacting with the Child

Where art is the content, the teacher's interactions with children will include presentation to individuals and groups, problem solving, and a type of content we might call awareness intervention.

In presenting art materials to children, clarity of language and movement serve the goal of communicating procedure, while leaving content *open*. We want children to learn how to use media and tools and to develop their own skills and techniques as they progress toward meeting their needs for expression; and we must also be clear that we do *not* expect them to duplicate adult products. A couple of strategies can help with this, especially in introducing a new exercise to a group. One way is to involve a child (or several children, one at a time) in the demonstration: the adult prepares the material at each step, but invites the child-demonstrator to execute any graphics necessary to show the process. Another way, in situations where it is more feasible for the teacher to create a model during the demonstration, is to make more than one model, with verbal discussion of still other possibilities or alternatives. For more product-oriented activities, in particular those requiring a long sequence of steps in construction, the teacher can prepare in advance for a group presentation by making a model (or models) for each stage; this can shorten the demonstration without sacrificing its effectiveness.

Even group lessons aimed at context (historical or cultural information) can have broader effects with an approach that features alternatives. Seefeldt describes such a context lesson related to clay, which involved the sharing of ceramic works, discussing the techniques the artist used to make the piece, and identifying other materials the artist could have used to make the same thing. The results with a group of four-year-olds, matched against a control group without

such a lesson, indicated gains—in attention span with their own clay work, in their verbalizations, and in the complexity and dimensionality of their products.

In any sort of presentation, clear communication of the rules and limits is a necessary support for the child's opportunity to have a successful experience.

A problem solving approach can be helpful when the child gets stuck between his desire for expression and his own lack of confidence. "I can't draw a horse," he may say mournfully, or "Teacher, will you draw a horse for me?" Or, rejecting his own first attempt, he may just crumple his paper and throw it away. Although this behavior may seem to reflect a concern for realistic representation in drawing or painting, it is one that few children have serious trouble with until the age of ten or eleven—the "crisis point" about realism described by proponents of developmental theory. When such concern appears in a younger child, it may be symptomatic of a more general lack of confidence or self-esteem, or a tendency toward perfectionism and self criticism sometimes observed in a child whose motor control seems out of sync with his mental development.

What can the teacher do to help? The developmentalists recommend encouraging the child to get in touch with his own experience—of a horse, or whatever he wishes to draw. This might be accomplished with the aid of some discussion and a recall-imaging procedure: first, "Tell me what you know about horses; have you ever seen a real horse?" After the child reports his experience of horses, the last step is inviting him to close his eyes and think about what the horse looks like: "Let your mind make a picture of a horse." If the child is able to "see" a horse in his memory, the chances are good that he will then have the courage to try again at drawing one. If not, then a more concrete experience may have to be provided.

Edwards suggests saying, "Let's go look at what you're trying to draw," so that new perceptions will then become part of the symbolic representations. With a horse, of course, that may not be possible, at least in most schools. But if the real thing is not available, the next best may be a model of the object attempted; and third best, a picture to examine.

With a child who has demonstrated some awareness of shapes, another strategy is to focus attention on the fundamental shape of the object. For example, you might tell the child that one approach to drawing an animal is to start with the body and add on the parts that stick out (like legs, tail, neck, and head). Cover up these parts on the model or picture, and invite the child to draw the shape he sees; then un-

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cover the parts one by one as he adds them to the body in his drawing. What is offered is a strategy for seeing, yet the child is still left free to develop his own schema for "horse."

Another version of the same problem—confidence—is "Teacher, do you like my picture?" Whether the child is expressing a need for approval or wanting an opportunity to disagree, teacher entrapment in a negative interaction can be avoided by handing the responsibility for evaluation back to the child: "Do *you* like your picture?... What do you like or not like about it?" Listening to the answer can provide the acknowledgment the child needs, while confirming the legitimacy and importance of his own judgment.

The phrase "awareness intervention" is meant to cover a wide variety of situations, from stepping in with support when the child is losing control of the material (a procedural awareness intervention), to asking a question about how a certain result was achieved (an instructional awareness intervention). If the child is to avoid a similar error in future experiences with the material or to repeat and expand upon the use of a new skill or perception, it is increased consciousness that can assist him in doing so. An approach that seriously asks, "How did this happen?" or "Where will the paint go if you shake the brush very hard?" can both give responsibility and encourage expanded awareness. In the area of artistic concepts, instruction may be meaningless before the child has made some discovery on his own, or until he at least raises a related question. Instruction on perspective in drawing, for example, if presented in a vacuum, will either not be understood or, according to some art educators, may actually restrict the child. When some indication of awareness appears in his drawing, however, that may be the time for teacher interaction: "What did you do here that makes this tree look close to us and that one so far away?" Like many other situations in teaching, awareness interaction depends on recognition and response to "the teachable moment." In the following description of an approach to art curriculum for Montessori environments, some possibilities for the instructional kind of awareness intervention are described in the section on concepts.

IMPLEMENTING AN ART PROGRAM

Basic art experiences are those which enable children to contact the primary modes or forms of activity in the visual arts, to explore media appropriate to those modes and to their age, to observe their personal response to materials and processes, and to develop their skills and techniques toward the level of self expression.

Space limitations obviously make it impossible here to present many possibilities for applying these skills to create products; that potential is vast. So, although a few examples are mentioned as variations and extensions, ideas for "applications" projects will still have to be cultivated from arts-and-crafts books and teacher ingenuity. Once the basic experiences have been introduced and to some degree mastered by the children, their enjoyment and ability to participate in product-oriented projects become greatly expanded.

Some attempt has been made to order the sequence of difficulty, both within each mode and across modes (see the matrix at the end of this article); the teacher will still need to determine the pacing of their introduction on the basis of the children's interests and capabilities.

Although children of age six and above may have mastered most of these materials, these are fundamental experiences that never go out of style, and most of them should remain available throughout the elementary years. The teacher offers challenge through awareness interventions and the specific applications of these basics that may be necessary in connection with other facets of the school program—whether the goal is decorating the room, making a holiday gift, or contributing to a sculpture display or bulletin board that culminates a science or social studies unit. We suggest that these basic exercises remain as options for individual choice, so that skills can continue to develop; applications (projects) can be offered *in addition*, either as ideas presented to the group or, better yet, as task cards, introduced to the group and then made available as possibilities for individual choice (see the photo example).

You will need:

- one 2-inch black square (hat)
- one 2-inch colored square (face)
- two 4-inch black squares (cape and skirt)
- two 1-inch black squares (shoes)
- one 2-inch brown square (broom head)
- one stick
- crayons • scissors • pasting tools

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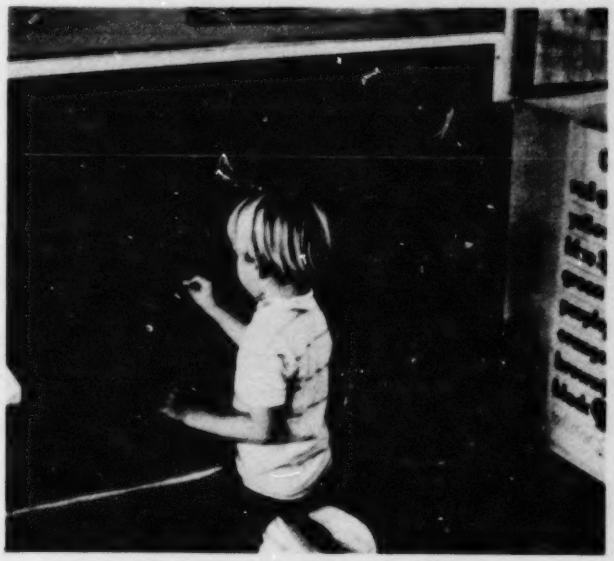
We realize that, for the experienced teacher, there is probably nothing new, except perhaps for being able to assure herself that she has left out nothing vital. Because this article grew out of work with Montessori student teachers, it makes few assumptions about the teacher's previous knowledge. It does, however, presuppose that the teacher has learned how to analyze an activity for level of difficulty, to structure procedures in a careful, step-by-step way, and to modify presentations and interventions as appropriate to the child's response. For this reason, the procedures outlined in these exercises are skeletal, aiming only at the essential points.

Concepts

It seems that little has been written about art with a focus on identifying concepts; yet there are some basic "big ideas" that run through much of the literature — line and form, color, composition, and to some extent texture and dimensionality. Although these ideas are cross-referenced in the exercises that follow, the real goal in identifying them is to raise consciousness about their possibilities. There might be times when verbalization of a concept would be appropriate, either as the theme for a group presentation or as an awareness intervention with an individual; but a list of them serves a more important purpose in planning ways to help children experience the ideas as they explore art materials.

This list is a "made-up" thing, intended to stimulate the thinking-through of possibilities for art activity: it is shared as a starting point to be enhanced, enriched, and added to out of the teacher's own experiences and ideas, and applied in accordance with her knowledge and observation of the children in her class.



WHAT TO DO:

1. On the 2-inch black square, draw a pointed hat. Cut it out.

2. Turn the bright-colored square into a face. Paste on some yarn for hair.

side view:

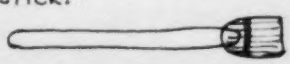
or

Front view: (Paste on a sharp one.)

3. Round two corners on each of the big black squares to make the cape and the skirt.

4. Draw feet on the 1-inch squares; cut them out.

5. Make a paper broom head. Paste it to the stick.



6. Paste the parts of your witch together. Sit her on the broom and tape it on the back.

General Concepts

Some ideas are presented throughout the continuum of exercises:

- Each person's art product has value as an expression of individuality.
- The growth of skill depends on experience.
- Each mode has its own special characteristics and appropriate types of material.
- Each medium has its own special characteristics.
- Media can behave differently from each other under the same conditions.

Line and Form

The potential for exploring concepts of line and form is present in all drawing and painting activities, as well as in many collage and printing experiences and some shaping work. Except for those which involve more advanced drawing skills or techniques, most are applicable at some level to any stage of development between the ages of three and twelve.

1. *We see lines everywhere...*

— in man-made things like patterns of cloth, in letters, in pictures;

— in natural things like the patterns of our skin, or wood grain, leaves, rocks.

2. *We see the edges of things as lines.*

(Continued on page 18)

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Concepts 1 and 2 lend themselves to group discussion focused on "Looking for Lines"—a way to raise consciousness of line and form in the environment. Supporting materials and activities to be related might include some of these:

Textile patterns emphasizing lines: a matching exercise aimed at identifying types (striped, ribbed, matrix, zigzag, wavy, broken-line, plaid, moire, geometric); a sorting exercise (consistent pattern types, varied pattern size and color).

Letters: a card sorting exercise of 3 to 5 letters in each of 3 to 5 different styles (large ones at least 4" × 4" are more effective); the child can sort either by letter or by style.

Natural objects with interesting patterns (wood, rocks, snakeskin, leaves, etc.) in the Beauty Corner, to be examined with a magnifying glass or used as a drawing challenge (copy the pattern of lines).

Printing in moist clay.

Crayon rubbing (see Printmaking).

3. We can make lines by moving a marking tool against a surface we wish to mark on. Expand this self-evident concept with discussion of "ways to make marks" as each new material or tool is introduced.

4. We can control or change the line by controlling or changing the movement of the hand. (See "Arm Dancing" under "Using Crayons.")

5. A line has the properties of width and length. Building on concepts and vocabulary introduced through experience with sensorial materials, this idea emerges as an awareness intervention at appropriate times, with individuals, through verbalized observations about what they have done in drawing, painting, or collage. Symbolizing movements with lines can focus attention on line qualities (short, thick, or broken lines to represent slow walking; thin flowing ones for running; dots or scallops for jumping or hopping). The variety of materials offered as linemakers in collage work provides opportunity for experimentation with the properties of lines.

6. Edges can form smooth lines or irregular lines. In beginning collage work, point out the contrast between edges made by cutting and those made by tearing or punching.

7. Lines can be open or closed:

—an open line never crosses itself;

—a closed line makes a shape or form.

8. A closed line divides the working surface into parts. A line belongs to the shapes on both sides of it; their edges are shared.

9. The space around a shape is sometimes called its "negative space."

10. Geometric shapes have been given names; other shapes are referred to as "free form." Concepts 7–10: Metal insets illustrate all of them except the "open line"; for that one, try space mazes with red rods or chalk lines, paper mazes for drawing or cutting. Movable-shape manipulatives like puzzles, attribute or parquetry blocks and tiles reinforce the idea of shapes and edges. "Mosaic" art with crayon or paint, based on filling in parts of scribbles or sections of paper created by folding, also emphasize the concepts. For collage, punching out shapes with a nail or resealing the first cut in from the edge with tape echoes the "negative space" of the inset frame. Paper collage work can be focused on each of these ideas in turn, or in combinations, as materials are changed and reintroduced over time. Using the concept of "negative space" as a drawing objective with older children can sharpen perception and composition skills (draw the spaces in between, rather than the objects).

11. When we draw pictures of things we see or remember, we use lines to show their edges (contour lines). The problem-solving example in the section on "Interacting with the Child" is based on this idea. Closing one eye may aid one's perception of the shape formed by the edges of an object, since it is binocular vision that gives us depth perception (which clouds the issue of the plane shape). This concept may be appropriate for children past the age of four.

12. Lines can be used to create an appearance or imitation of texture. (See Painting and Printmaking activities.)

13. Lines can be used in drawing to create impressions of light and shadow or of volume (crosshatching: a series of intersecting sets of parallel lines).

14. We can imagine lines that don't really exist to help us in drawing. Although Concepts 13 and 14 are relatively advanced concepts in drawing, they might come up as questions with children of ten to twelve. Examples: a *central axis* that bisects a human face, used to determine the tilt of the head and place the features; a *grid* of evenly spaced horizontal and vertical lines at right angles, dividing a drawing/painting into small squares or rectangles to help in enlarging a drawing or seeing spatial relationships.

Color

15. People respond to color with feelings; we can use color to express ideas/feelings. Discussion with individuals or in the group can elicit the concept, as do art projects focused on "my favorite color" (or other color families) and teacher invitation to the young artist to explain why certain colors were chosen for certain objects or parts in his/her picture.

16. One dimension of color difference is hue, a color in its purest form.

—All hues are derived from the primary colors: red, blue, and yellow.

—Mixing one color with another produces change in color. Learning the word "hue" is unimportant; grouping colors into "families" is more relevant to the child's experience of color (as in sorting buttons, marbles, paint samples, fabric swatches, colored papers, or crayons). Materials which offer opportunity for color contemplation and mixing might include the first and second color boxes, commercially made color paddles, a mixing exercise with colored water, transparent sheets of colored cellophane in the collage boxes. Be wary in mixing paint colors with tempera and always try it out before presenting to the children; these colors are often too impure to enable mixing all other colors. It may help to work with two reds (e.g., a vermilion and a magenta) and two blues (an ultramarine and a turquoise), since violet seems especially difficult to achieve with the usual school temperas.

17. A second dimension of color is value, meaning lightness ("high" value) or darkness ("low" value).

—We can change the value of a paint color by adding white or black.

—Adding white produces a tint of the color.

—Adding black produces a shade of the color.

Color Box 3 contains tints; children interested in this material may be ready to experiment with the concept by making their own set of tints and/or shades—or just using this kind of mixing to paint irregular color swatches into a unified whole that illustrates a color family (see exercise 4 under "Painting"). A "practical" interest in mixing precise hues, values, or intensities in order to reflect reality or create particular effects doesn't seem to appear until the age of nine or ten, although younger children do enjoy the process of paint mixing and experimentation. It is likely that a good supply of white will be needed for this work.

18. A third dimension of color is intensity, meaning strength or brightness. We can change the intensity of a paint color by adding the primary color (or colors) not already in the color (as in softening a green, which contains blue and yellow, by adding a trace of red). As a support for the concepts of shade and intensity, the teacher can use paints and poster board to create "Color Boxes 4 and 5," while offering the same kinds of paint mixing as described for tints.

19. Seeing color depends on light; changes in light affect the color we see. This concept often emerges in a practical way, out of a child's need to discriminate between tints in the third color box; if the child is having difficulty, adding more light may help. A "shoebox viewer" can also illustrate this concept: put in some color samples; view through a peephole with the lid closed, then open the lid slowly to let in more light; tell which colors you see first, describe the way they change as more light comes in. The concept can also be observed during a sunrise or sunset, of course, when colors rather quickly change for us in the growing or fading light.

20. Our perception of a color is influenced by other colors which surround it. This sophisticated idea is not easily translated into specific activity in childhood, although it may emerge as an observation when children share easel paintings in a group (the colors used from picture to picture may be the same, but surrounding colors may result in quite different appearances).

Where color is concerned, perhaps the most important idea for teachers is to maintain a balance between activities that focus on color skill and those that encourage children's personal response to color.

Composition

21. The arrangement of the parts of a work of art—its forms and spaces—is called its composition.

22. The format of a work of art—the particular shape of the working surface or the boundaries of the area—controls its composition.

Concepts 21 and 22: As others have pointed out, young children seem to have a natural grasp of the importance of the format, a consciousness of distributing the forms and shapes within the bounding edges, and a nearly flawless sense of composition. For this reason, instruction is unnecessary and inappropriate. The effect of the idea of format is revealed through the shapes of backgrounds offered for children's drawing, painting, printmaking, and collage. With an individual child, the point can be emphasized with the challenge of drawing the same object on several different shapes of format, or completing crayon mosaics on different shapes that have been symmetrically folded. With older children, whose sense of composition seems to lapse somewhere around the age of ten, some activities that focus attention on the whole may be called for. Experiences in drawing the spaces rather than the objects, or cutting out the spaces from a magazine illustration and using them to compose a new picture, using a viewfinder (a frame) to bound the edges of the visual field, and experimenting with collage materials that encourage alternative arrangements and examination of their effects—all may be valid activities when the natural sense of composition begins to wane.

23. With some art modes, we can experiment with composition by moving the parts around until we find an arrangement that strikes us as pleasing or effective. Collage, clay modeling, printmaking.

24. In a construction, such as a stabile or mobile, kinesthetic balance is essential to effective composition. Experience of space and gravity with one's own body is the foundation for understanding of balance and three-dimensional space. All activities which prepare the child in this way affect his expression with three-dimensional materials. Exploring spatial relationships on the playground, taking an "earth walk" planned to encompass an interesting variety of positions in space and followed by a discussion of feelings elicited by the positions or viewpoints, and constructing three-dimensional spaces with blocks—all should be preliminary to attempting a small construction which is predominantly visual. This kind of space study requires the ability to reconstruct experience and take an imaginary viewpoint, so it is not really suitable for children under the age of seven or so. When the child becomes capable of mental manipulation of forms and perceptions, this kind of construction lends itself to group projects—designing a miniature city, for example, or a model playground.

25. The composition of a work of art can lead our eyes in certain directions—such as into the work, or out from its boundaries. Discussion in the group, with older children, can bring this concept to awareness without evaluating which is "better," yet include examination of the elements that contribute to the phenomenon.

Texture and Dimensionality

26. The physical character of a material or object is given by the properties of its parts—their size, shape, arrangement, and proportions.

27. We describe texture with words like rough, smooth, gritty, grainy, lumpy, slippery.

28. We can change the texture of paint or clay by adding things to it. Concepts 26–28: From the Montessori materials that focus on tactile sensation and vocabulary, these ideas come up in the course of introducing and using media.

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29. We can use tools to change the texture and dimensionality of a surface. Imprinting on sand, clay, and styrofoam makes this point.

30. Texture and dimensionality affect the way we see color; color affects the way we see texture and dimensionality. Collage work incorporating different materials of the same color illustrates this concept; so does adding paint to imprinted surfaces of sand, clay, or plaster castings. Experiences with crafts, such as weaving and stitchery, or leather or metal tooling, can also contribute to understanding of this concept.

Contexts

The following resources can facilitate the communication of cultural and historical information about art.

- **Art Books and Visual Aids** like posters, prints (reproductions), photographs, magazine illustrations, or films. A collection of such materials takes time and funding to develop, but without examples the wealth of our art heritage can hardly be shared. Organize a card file on both library and school resources, cross-referenced in several ways: by mode (drawing, painting, collage, printing, or shaping); by artist; by art movement (e.g., styles of painting); and by subject (e.g., flowers, trees, landscapes, families, animals, etc.). With a little investigation you may be able to find several parent volunteers who are interested and able to do some library research, hunting through old magazines to get the card file and picture resource file started. The research can turn up books that are definitely worth having (like the Crown Publishers series of little books isolating "Movements in World Art"); don't overlook used book stores as a budget-saving resource for your art library. Both prints and picture postcards are available at minimal cost from most museums; contact the nearest ones first to find out what they have, and ask them about other sources if you can't find what you need.

- **Picture Postcard Matching and Sorting Sets.** Cards can be organized in any way that suits your purpose: identical picture-matching of work by the same artist or artists from different movements, or of the same topic by different artists; sorting by artist or style; matching a picture of the artist to one of his most famous works (using the self-portraits of artists is the easiest way to accomplish this); picture and title matching for famous works of art; sorting into different groupings within the same art mode; developing an art "timeline" with pictures.

- **Original Works of Art.** This opportunity will probably depend on field trips to museums, unless you are fortunately near professional studios or art schools where work is in progress. Don't overlook the possibility of amateur artists in your community, who might even be generous enough to bring their work to the children for sharing or demonstration.

- **Artifacts.** Develop small collections—of beautiful glass, rocks and seashells, pottery that illustrates different texturing techniques, small boxes with a variety of decoration, baskets with designs, other woven materials, or replicas of objects from the past. Again, inquire about collections parents may have that they are willing to share; the variety of resources within your own school population may surprise you.

- **Interesting Places.** Use a child's eye view and search your immediate vicinity for spots that offer quiet beauty, varied elevations to look out from, and interesting textures or contrasts.

And remember that the first step in getting resources organized depends on making the decision to do so; it tends to proceed best when you choose one topic or a small project at a time to work on.

Media Characteristics, Techniques, and Activities

About Paper

It's literally the foundation of an art program, in itself a stimulation for children, who don't take it for granted as adults do. Assemble it neatly, plan the variation of its types and colors, and share with children the fact that it uses up trees—but don't be stingy with it. Many free or inexpensive types are available, and few other materials in the world can compare with the motivating force of a clean sheet of paper; it is an invitation to activity.

Free Stuff. The best and most likely source is a local printing shop; a printer who is also a parent, or one with whom the school or some of its parents do business, is a most likely prospect—and one request can sometimes bring the school a year's supply of varied drawing and inset paper. Some printers charge a per-pound fee for their discards, but it is usually an insignificant amount when compared with the price of even the cheapest paper from a school supply house. Newspapers will sometimes contribute their end rolls; computer firms or businesses that use computer paper may have large supplies of waste paper (still usable on one side). Paint stores or decorating shops may give old sample books or remnants of wallpaper, cloth, or carpeting. Suppliers of mimeograph stencils may be willing to participate by getting customers to contribute the thin, protective storage sheets to you as tracing paper. Ask parents to participate in collecting magazines, catalogs, wrapping paper, paper bags, and small cardboard boxes.

Newsprint. The cheapest paper you can buy, great for drawing and adequate for tempera painting, though it's quite absorbent and tears easily. Order 18" × 24" sheets (easel size) by the 50-pound bundle, cut them to the sizes you need for other things (like 6" × 9" and 9" × 12" for drawing). To encourage labeling or story writing as accompanying activities, fold the bottom of easel paper under to save a place, cut strips to be pasted onto drawings, and get some of the kind of newsprint with half the page ruled.

Manila Drawing. Inexpensive; good for painting, wet chalk, printing, drawing; doesn't keep well (gets brittle and weak with age). 9" × 12" size is most useful, can be cut in half for beginners.

White Drawing. 60 or 80# weight, the best all-around paper, if you can afford it.

Construction. Smooth-surfaced, 80# weight, available in a wide variety of colors, excellent for general use (cutting, pasting, collage, printing, booklet covers). 12" × 18" size is most useful.

Poster. Similar to construction, but 40# weight is easier for very young children to fold and cut.

Fadeless. Lightweight but durable, strong colors on one side only, good for display use.

Butcher wrap. Tough enough for fingerpaint, good for murals and oversized painting/drawing; order in 30" or 36"-wide rolls.

Fingerpaint. Coated; good quality is expensive, and butcher or freezer wrap works about as well.

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Tagboard. Inexpensive, off-white, lightweight flexible cardboard, good for making patterns, cards, booklets, charts, headbands, and lots of other things.

Posterboard. Slightly thicker and less flexible than tag, colored on one or both sides, good backing for teacher-made materials, laminates well.

Tissue. Essential for collage and construction; colors and white; large-quantity packages cut expense.

Novelties. Odds and ends can supplement and add interest to collage work and drawing: corrugated, sandpaper, crepe paper (fades onto hands when wet or pasty), fluorescent, parchment, gummed paper, stickers, doilies, paper plates, towels, and facial tissue.

The Drawing Mode

For the artist of any age or persuasion, drawing is the most basic art form, preparing the way for success with all other modes. Through drawing activities, the child has an opportunity to . . .

- Express his/her development through art media.
- Experience the visual record of hand/arm movement with the drawing tool and refine visual-motor coordination and control.
- Observe the properties of a variety of media and his/her personal response.
- Discriminate in choosing materials.
- Experiment with the properties and effects of line, space, form, and color.
- Consider alternative methods of using materials and tools to create different visual effects.

All of the drawing activities described here may be successfully used by children from the age of two onward; each is prerequisite, in some way, to those that follow. The child should have an understanding from the use of other materials in a Montessori setting that materials have certain purposes, should be reliable about putting only appropriate things in one's mouth, and should be familiar with basic cleanup procedures.

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Crayons

Cherry[27] calls them the "A-B-C of art"—easy to use, store, and maintain; long lasting, relatively neat, requiring little or no adult assistance, yet tremendously satisfying in their beautiful colors and possibilities for expression and exploration. Dark colors contain more wax than light ones and are thus softer, more adherent to paper, and opaque (colors underneath won't show through). Lighter colors are harder, go on thinner, and are more transparent; they can be used over a colored paper or darker crayoning to produce change in color. Thin paint or ink tends not to stick to the waxy surface of crayon; to increase its sticking power, add a small amount of liquid soap to tempera, or dust the crayoned area first with a chalkboard eraser.

Store the shelf supply of crayons *by color* in baskets, low jars or plastic boxes, and provide small individual trays or cups for the child to put his own selection of colors into. The shelf supply can contain several types of crayon in a single color—thick ones for scribbling; thin ones for drawing and to promote finer control; shorter, peeled pieces for experimenting with line width and texture.

Workboards of tempered masonite (10" × 14") and shelf supplies of newsprint and drawing paper should be located near the crayon storage area. Leave some space in this area for later addition of the tools needed for extensions.

Drawing 1: Using Crayons

Materials:
Shelf supplies of workboards, paper, crayons, and individual crayon cups
Paper towels for cleanup
Procedure Points:
1. Assemble and name the set of materials at the shelf: use the workboard as a tray for the paper and crayon cup; invite the child to select the crayon colors he wants, including several types (thin, fat, short-peeled).
2. Tell the child which work area is appropriate (table or special floor space for drawing), and carry the material there.
3. Ask the child to call you when he has finished, so you can help to get his name on his work (and a label, if he wants), show how to put the material away and clean up.
4. When he calls, check for marks on the work surface and rub them off with a dry paper towel if necessary; show how to file the crayons back on the shelf by color and replace the cup and workboard.
5. Invite the child to choose whether he wants to share his work by posting it on a display board or to put it away to be taken home.

Control of Error: The workboard; the teacher

Variations and Extensions:

A. **Colored Paper Formats** offer opportunity to observe color changes/effects (Concept 16).
B. **Non-rectangular Formats:** vary the shapes or edges of background papers (Concept 22).
C. **Negative Space Formats:** prepare paper by cutting out a shape somewhere (Concept 9).
D. **Textured Formats:** offer painted paper, sandpaper, cloth, wood, or other surfaces (Concept 26).
E. **Arm Dancing:** on a large paper placed on the floor, invite one child or a small group to respond to music with the marking tools. Play recorded short selections that vary in style and tempo. Vary by using chalk outdoors on a sidewalk, felt pens, a large paper fastened to a wall, or using both hands. Points of interest: changing to a new color at the end of each selection; noticing whether the music inspires smooth flowing motion and lines or jerky, interrupted ones.[27] (Concepts 3-4)
F. **Crayon Mosaic:** Start with a scribble which has closed lines, or fold or crumple the paper and then outline some of the shapes formed; color in the sections for a mosaic effect. (Concepts 6-10)
G. **Parchment Effect:** Paint the back of a crayoning on thin paper with a thin coat of cooking oil for a parchment or stained-glass effect; dry overnight on newspaper to absorb excess oil. (Concept 19)
H. **Etching:** Crayon hard on manila or cardboard to cover the surface with lighter colors; then cover with a layer of dark crayon. Rub with a paper towel to buff the finish; then use tools (a nail, fork, table knife) to scrape out trails or a design. The first layer of color, underneath, will show through. This technique is also called "Crayon Relief." (Concepts 3, 4, 7, 12)
I. **Rubbings:** (See Printmaking)
J. **Crayon Resist:** Add a wash of thin tempera, watercolor, or washable ink with a small sponge over a crayon drawing; experiment, using light crayon with dark paint and vice-versa. (Concept 12)

Watercolor Felt Pens

Brilliant, free-flowing yet washable colors may be used on paper or cloth. Transparent paint shows up best on light-colored material. Color may bleed through thinner papers or cloth, so make workboards available to protect surfaces. Elementary children mature enough to be trusted with permanent felt-tip markers may enjoy using them on other materials, too, such as waxed paper, glass, plastic, or styrofoam (the solvent in the pen colors will dissolve the styrofoam surface slightly to give a relief effect).

Drawing 2: Using Felt Pens

Materials:
Shelf supply of workboards, paper, sponges for cleanup
Container of watercolor felt-tip pens in a variety of sizes (widths) and colors (at least two sets for a group 20 children)
Procedure Points:
1. Assemble and name the set of materials at the shelf: use the workboard as a tray for the paper and container of pens; carry material to an appropriate workspace.
2. Choose a pen, remove the cap, and put the cap in its special place at the other end of the pen; keep it there while you are using the pen.
3. Note that only a light touch is necessary to make marks on the paper.

4. Demonstrate and call attention to the relationship of tip width to line width, and angle of pen to line width.
5. Identify finished work with the name of the artist.
6. Stress the importance of making sure all tips are covered by their caps when the pens are put away, so that the colors will not dry out.
7. Take the product to the drying area; check for marks on the work surface and wipe with a sponge if needed; put away the materials.

Control of Error: workboard; the teacher/other children

Variations and Extensions:

A. **Varied Formats** (see Drawing 1)

B. **Mixing Media:** With crayons or collage, pens are especially effective in outlining shapes for emphasis, or for adding fine details.

Chalk

The dry, powdery nature of chalk gives it an irresistible tactile effect. Most people quickly discover turning it on its side to achieve soft, cloudlike patches of color, as well as noticing that it smears or rubs off the surface easily. Chalk responds to highly textured papers with interesting effects, and appears more intense on contrasting paper (light on dark, dark on light) and on a wet surface. Experience with a chalkboard and with dry-paper drawing (see Variations) should come first.

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Drawing 3: Chalking on Wet Paper

Materials:
Medium-size tray with a narrow lip, containing:
¾" bristle paintbrush
Small container of colored chalk
Small jar/glass with marked water line
Small sponge
Apron
Shelf supply of heavyweight 6" × 9" paper (drawing, construction)

Procedure Points:
1. Protect clothing with an apron.
2. Select a paper, put it on the tray, and carry material to a table.
3. Fill the jar up to the line from the water supply; place it on the tray.
4. Pick up the brush: demonstrate the thumb-forefinger grasp. State that you will use the brush to wet the paper.
5. Dip the bristles into the water; wipe them gently on the jar lip "to keep from dripping."
6. Brush the water onto the paper, working left to right, top to bottom. Explain that you must work quickly so the paper won't dry out; invite the child to continue brushing until the whole paper is wet; then lay the brush down.
7. Draw/invite the child to draw with the chalk; observe that more chalk sticks if the paper is wet.
8. Ask the child to call you when finished; return to insure name on work and removal to drying area.
9. Show how to wash and dry the water jar, wipe spills or chalk marks from the tray with the sponge, and put away the material.

Control of Error: the lipped tray; water line on jar; teacher

Variations and Extensions:

A. **Chalkboard Drawing:** Offer a basket of colored chalk and an eraser near a low chalkboard. Demonstrate correct use of the eraser and state the limits (only rubbing, since hitting makes dust in our lungs and the room).

B. **Chalk Drawing:** Introduce a container of chalk for paper drawing on a masonite workboard. Include a bristle brush or facial tissue if you wish, and demonstrate the technique of rubbing to soften the edges of color or blend colors together (Concepts: General, and 16). (Hairspray has a somewhat fixative effect on the product.)

C. **Other Wetting Agents:** Results with liquid starch, buttermilk, or sugar water (1/3 cup sugar dissolved in 1 cup water) have distinctive visual qualities; all have a more fixative effect than plain water. (Concepts: General, 28)

D. **Rubbings** (see Printmaking)

Oil Pastels

Brilliantly colored oil pastels are softer than crayons and don't rub off so easily as chalk, though they will smear and smudge under pressure. They work best on papers that have texture, used by children who have achieved some measure of control and show interest in color variety and shading. Blotting finished work lightly with a cloth dampened with paint thinner gives an oil-painting effect.

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Charcoal

Charcoal can be used effectively in drawing for both edges and textures, it is especially suited for those working on skills with light and shadow. As a light-and-shade exercise in portrait drawing (of interest to adolescents), Edwards suggests covering a paper completely with an even tone of charcoal, then using an eraser to execute the lighted shapes.

The Painting Mode

Photograph by Staros.

Experiences with painting deepen and expand the purposes described for drawing. Due to the nature of paint and our perception of it, two things now command the child's attention in new ways: color and the use of tools. With the painting mode, we offer the child new opportunities to . . .

- Increase color awareness—of relationships and possibilities of the spectrum, of the behavior of color as a liquid medium, and of the variety and effects of color in our environment, moving toward the use of color with intentionality.
- Develop precision, understanding, and initiative in the use of tools and techniques in producing visual art.

Children from the age of three onward find paint attractive. Be sure they know how to use the drying space provided, including hanging papers with clothespins. Because it is understood that putting on an apron should always be first, and taking it off should always be last with any kind of painting activity, these steps have been omitted from the procedures. Pointing out that mothers prefer paint on paper, rather than on clothing, usually insures that children understand the importance of aprons!

Fingerpaint

Commercially prepared fingerpaint is available in a wide variety of colors and is usually used on wet paper; but because the basic requirements for fingerpainting are some paint and a surface to smear it on, many other homemade concoctions work just as well: tempera or food coloring added to liquid starch, wheat paste, library paste, or liquid soap. You can even use instant pudding (although this may disintegrate into an eating activity)!

The paper must be smooth and tough: fingerpaint paper, butcher paper, 80# drawing, or even tagboard. If it curls while drying, press it afterwards on the backside with heavy books or an iron.

Using fingers and hands as paint tools is, of course, a major point of interest, though many children may need encouragement and support to reconcile fingerpainting with a lifetime of training aimed at keeping their hands clean. A child who is extremely reluctant about trying it may be persuaded to start with a liquid soap base to which only a little light coloring has been added (yellow food color, for instance).

Painting 1: Fingerpainting

Prerequisites: pouring and mixing activities, counting to three

Materials:

- Apron
- Paper cut to fit inside the the tray (it can be stored under the tray)
- A sink (or large washbasin)
- A large cookie sheet containing:
  - Plastic squeeze bottle of liquid starch
  - Two shaker-top containers, each with a primary color of dry tempera paint
  - A sponge
  - A small damp cloth for wiping hands

Procedure Points: (Remember the apron!)

1. Carry the tray to a table; remove its contents and place them nearby.
2. Bring a paper from the supply shelf and place it inside the tray.
3. Squeeze out three puddles of starch onto the paper; use one hand to spread it evenly over the whole paper.
4. With the other hand, shake dry tempera (three shakes) onto the starched paper.
5. Encourage the child to mix in the color and try out different ways of moving the paint and making marks with his hand.
6. If desired, add a little of the second color later, after wiping hand on cloth.
7. When the child is finished, show how to wipe hands and carry tray to the drying area to remove the painting.
8. Wash the tray in the sink or basin and dry it with the sponge; sponge up any spills on table or apron.

9. Replace the starch, paint, and sponge on the tray and return it to the shelf.

Control of Error: Tray with a lip; counting the number of shakes; the teacher.

Variations and Extensions:

Substitute other fingerpainting media; add sand or cornmeal.

Concepts: 3-5, 7, 12, 15, 16, 26-28

Tempera

Although ready-mixed tempera is not expensive, preparing paint from powdered tempera is even less so, offering the additional advantage that it can always be relatively fresh. Tempera is easiest to handle with a brush when it's the consistency of thick cream. To mix it:

1. Add two parts powder to one part liquid (half water, half starch).
2. Let stand until the powder gets somewhat soaked up by the liquid.
3. Then stir it as little as possible.
4. Adjust to the desired consistency by adding more water or powder.
5. Additives: to prevent souring, add a few drops of oil of cloves or wintergreen per pint, or a teaspoon of alcohol or cologne. Alcohol will also help reds and oranges to keep their brilliance. A few drops of liquid soap aids washability; a lot of it helps paint to adhere to waxy surfaces.
6. Mix a few days' supply and store in covered containers.

Tempera is easy to control, while offering diversity of use, either alone or in combination with other media. It is opaque, yet can be thinned for use as a wash (e.g., for crayon resist). Its colors mix readily and dry quickly; once dried, tempera can be painted over.

Skills and Techniques

> The task of painting with [an overwhelming color range of] fluid tempera paint on an upright surface using nonresilient brushes on newsprint is a task that would frighten most mature artists, yet nursery schools—in the name of creativity—are prone to make precisely these materials available to the young child.[17]

Although this criticism by Eisner may seem too harsh, careful analysis of the demands of the task and the "isolation of difficulty" found in the rest of a Montessori environment are equally valid with art material. We can encourage a child who is just beginning to use paint to work with a very limited range of color at first (one or two primaries), while he builds skill and control with the medium. Increase the range of color gradually to avoid confusing the child with more complexity of color than he needs or can cope with. We can provide a variety of working surfaces and offer a selection of brushes (introduce the choice with a challenge to notice the different qualities of performance, and have a follow-up discussion about them). Even if budget limitations imply newsprint most of the time, on some occasions we can provide something more durable (butcher or drawing paper).

As we observe a child painting we can verbalize about what we see him accomplish with the brush and even suggest new things for him to try: stroking carefully and evenly to produce a uniform tone; heavy strokes with thick paint to give texture; like some of the impressionists, creating forms made by dabbing dots, rather than stroking (introduce this using quadrille paper as the background); stroking or dabbing with a semi-dry brush to achieve an almost translucent effect; guiding a thinned paint as it flows onto the paper; applying a wash to create background for some other medium.

Working Surfaces. Painting on the floor or at a table is facilitated by the use of painting boards made of Marlite (a tough, washable, slick-surfaced wall paneling), or Celotex or soft masonite covered with oilcloth or plastic. These materials are easy to cut to the sizes desired: probably 10" × 15" or 15" × 20" for table use, and 24" × 30" for floor work. Easels can be covered with layers of newspaper or with modified trash bags for easy cleaning.

Tools. Because the initial attraction to painting for most children is based on color, containers for classroom use should reveal their contents; if you are not comfortable with small glass jars, try clear plastic containers (with lids). A drop of salad oil on the inside edges of lids will keep them easy to open; wash off the outsides of jars as part of daily maintenance. Although a pragmatic interest in mixing colors (to reflect what is seen in the environment) doesn't seem to appear until late childhood or early adolescence, younger children may be interested in the *process* of mixing to produce changes in color or texture; to begin with, the opportunity to mix is best handled as an exercise separate from picture-making.

The long pointed handles of easel brushes can be trimmed off with a saw to increase their safety and balance for use by the very young. Narrow brushes seem to lead to greatest control and the widest variety of effects in image-making. Flat bristle brushes of 1/2" to 3/4" widths are standard; round brushes of squirrel hair, which are flexible and hold more paint, can be added as children gain experience. Experimentation with texture effects can be promoted by painting with sponges, rollers, twigs, Q-tips, string, straws, feathers, marbles—or anything else that will apply paint to paper.

Paint and tools for table or floor work can be conveniently used and transported from the shelf in a plastic carrier or tote box that has a handle and several compartments.

Painting 2: Painting With a Brush

Materials:

A choice of working space:

(1) An easel of appropriate height for the child to paint standing up. Spring clips, clothespins, or tape enable independent paper fastening. The bottom of the easel board should slant out toward the painter at about a 30° angle, and have an attached paint tray or an adjoining table for supplies. Locate a stationary easel in a place with low traffic and good light (at right angles to a window, or outside in good weather). Protect the floor (and nearby walls) with an easy-clean covering (sheets of heavy plastic, linoleum, or Marlite).

(2) Painting board and a washable floor area, designated for painting and defined by lines of colored tape.

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(3) Painting board and designated table(s) in an area with a washable floor.
Aprons
Nearby emergency cleanup tools: mop, pail, and sponge
Shelf supply of:

- Paper
- Tote boxes (as many as the number of children who can paint at one time)
- Small covered jars of liquid tempera
- Brushes (in container)
- Water jars (with lines marked)
- Sponges

Procedure Points:

1. Choose an available workspace; apron.
2. Show how to attach paper to the easel or take a painting board and paper to the work area. Ask the child if he will want to make a story about the finished picture; if so, fold under 4 or 5 inches of the paper at the bottom.
3. Return to the shelf and show how to assemble materials in a tote box: paint (one jar for beginners), a brush (for beginners, one for each color), a water jar, and a sponge.
4. Take the material to the work area. For the easel with a tray, put the materials into the tray and store the tote box inside the easel legs; for other situations, the materials can be left in the tote box during use.
5. Fill the water jar up to the line from the supply, and carry it carefully back to the work area.
6. Demonstrate the following:
   a. Remove the paint lid and place into an empty compartment of the box.
   b. Grasp the handle of a brush.
   c. Wet the tip, wipe on edge of jar, then press onto sponge to remove excess.
   d. Dip the tip into the paint, wipe on edge of jar, move to the paper.
7. At this point, invite the child to take over the brush (help him grasp it) and apply the paint to the paper.
8. When he needs more paint on the brush, tell him you will help this time and put your hand over his to guide the process of dipping into paint, wiping, and moving to the paper. Point out any drips or thick paint areas, and tell the child he can use the brush to spread the paint over the paper.
9. Ask the child to call you when he is ready to clean up/tell the story.
10. Demonstrate cleanup:
    a. Put the lid on the paint.
    b. Show how to pick up the painting by the lower corners (so the wet surface will face forward) and move it to the drying area (or to a table for story dictation).
    c. Show how to wash the brush in the water jar; press it firmly onto the bottom and swish it around carefully. Wipe it with the sponge to remove all traces of paint and water.
    d. Look for paint traces on the board, table, floor, etc. and wipe them off with the sponge.
    e. Wash the water jar and the sponge.
11. Return all material to its place. (The apron should stay on until all cleanup is finished, and until the story dictation and removal of the painting to the drying area have been accomplished.)

Control of Error: The defined boundaries of the working space; the water line on the jar; the teacher. In addition, for beginners: limiting the number of colors; a brush for each color.

Variations and Extensions:

A. Add variety through wider selections of brushes and papers (types, shapes).
B. Expand the range of colors.
C. Mixed media: Combine tempera with other media (drawing, collage).
D. Discuss and demonstrate the effects of different brush techniques.
Concepts: General, 3, 4, 5, 11, 15, 16, 20, 25, 30

Painting 3: Painting with Other Tools

Materials:
Apron
Lipped tray containing:

- 2 plastic squeeze bottles of liquid tempera (primary colors)
- A sponge

Paper to fit inside the tray (stored under)

Shelf supply of tools, each type in its own container, to be introduced one kind at a time. Suggestions:

(1) 4" soda straws
(2) 10" strings, each knotted at one end (hold down on the paper at the knot; move other end to spread paint)
(3) 2 small paint rollers (narrow)
(4) Q-tips, feathers, and twigs
(5) Toothed implements (forks, pieces of wide/narrow-toothed comb)

Procedure Points: Straw Painting.

1. Put a paper and the container of straws on the tray; carry it to the table.
2. Take the materials from the tray and arrange them on the table along one end or above the tray, so that they are out of the way but accessible.
3. Put the artist's name on the back of the paper.
4. Squeeze a puddle (or strip) of paint onto the paper; in a different spot, add a puddle or strip of the second color.
5. Show how to hold a straw securely, aimed closely at the paint but not touching it; blow through the straw to move the paint into patterns.
6. Ask the child to call you when he has completed a pattern he likes.
7. Participate in cleanup:
   a. Use the sponge as a tray to carry used straw(s) to the wastebasket and throw away.
   b. Remove the picture to the flat drying area, carrying horizontally.
   c. Sponge all traces of paint from the tray and table; wash out the sponge (and other tools) if necessary.
   d. Put all materials back on the tray.
8. Return the tray, tools, and apron to their places.

Control of Error: The lip on the tray; one squeeze of each color; the teacher; for beginners, one tool at a time.

Variations and Extensions:

A. Introduce each new set of TOOLS.

B. Select two types of tools to use in combination.

C. Discuss the effects that can be created with the tools—and other ways one might achieve the same (or different) effects.

Concepts: General, 3, 4, 5, 7, 12, 16, 29

Painting 4: Mixing Paints

Prerequisites: Probably at least 5 or 6 years old.

Drawing and painting; using medicine droppers; mixing experiences...(sand and water, soapsuds, colored water); awareness of color and interest in color changes and differences in texture.

Materials:

Apron

Shelf supply of:

Coffee stirrers

Small painting boards

White 9" ×12" drawing paper

Four small (6" × 9") plastic boxes, to be introduced one at a time, over time, as some children in the class become interested:

(1) **Hue:** A small palette (with 6–8 recesses); 2 small covered jars of liquid tempera in primary colors (e.g., blue and yellow); 2 medicine droppers; water jar with marked fill line; brush; sponge. (Thin paint enough to use droppers.)

(2) **Value:** small palette; 3 covered jars of paint (a color, white, and black); 3 medicine droppers; water jar; brush; sponge.

(3) **Intensity:** small palette; 2 covered jars of paint in complementary colors; 2 medicine droppers; water jar; brush; sponge.

(4) **Texture:** small palette; plastic squeeze bottle of liquid starch; water jar; medicine dropper; teaspoon; 2 covered jars (sand, cornmeal, or wheat paste—any two); brush; squeeze bottle of food coloring.

Procedure Points: The Hue Box

1. Using a small painting board as a tray, put on a piece of paper, several stirring sticks, and the paint mixing box; carry the material to an appropriate table.
2. Get the material ready: fill the water jar up to the line and place it in the box; take out the palette and set it on the table next to the box; remove the lids from the paint jars and take out the medicine droppers.
3. Tell the child this material can be used for mixing new colors from the two primary colors.
4. Put one dropper of each color into one paint recess of the palette; leave each dropper in its color.
5. Use the stirring stick carefully to mix the paint in the recess; lay it beside the palette. Invite the child to verbalize the combination (blue + yellow = green).
6. Invite the child to repeat the same process two more times, half-filling two more paint recesses with equal parts of blue and yellow and mixing them.
7. Then ask: "What do you think would happen if we put some extra yellow in one of our greens?"
8. Accept the prediction and then try it in the second recess: yellow-green.
9. Repeat, adding more blue to the third green: blue-green. [If it seems appropriate, you can tell the child that green is called a secondary color; blue-green and yellow-green are sometimes called intermediate colors.]
10. Invite the child to make a "color sampler" by painting swatches of all these colors—the two primaries and the three new hues, arranging and shaping them any way he likes on the paper.
11. Take the picture to dry; clean and put away all materials.

Control of Error: working with only two primary colors at a time; "measuring" paint proportions with the droppers; the teacher

Variations and Extensions:

A. Change the combination of primaries offered.

B. When a child expresses interest in mixing his own colors for picture-making and seems able to handle a wider color range, make tools for this purpose available.

C. At a gradual but appropriate rate, introduce the other MIXING BOXES and concepts:

BOX 2, **Value:** With a single color, create a series of tints by adding increasing quantities of white, and shades by adding black. Vary the basic color(s) offered.

BOX 3, **Intensity:** With a single color (secondary or primary), create a series of intensities by adding increasing quantities of its complement (its opposite on the color wheel: green v. red, orange v. blue, violet v. yellow). Vary the original combination provided.

BOX 4, **Texture:** Add starch to various dry substances and paint a "texture sampler," using both uncolored and colored mixtures. Vary effects by thinning with water.

Concepts: 15, 16, 17, 18, 20

Watercolors

This flowing, transparent medium, whose colors are easily intermixed and tend to be uneven in effect, was considered by Lowenfeld to be too frustrating for children before adolescence. Although his assessment is probably correct for children in the picture-making stage (4 to 8 or so), those who are younger or older seem to enjoy the fluidity of watercolors. They sparkle most on white paper, are best controlled by the youngest if the paper is kept small (6" × 9"). Color seems to be the main attraction at this end of the age range, though a close second is the fascination of watching the paint flow over the creases of a paper that has been crumpled and then smoothed out before starting. At the other end of the age spectrum, attention is occupied by brushing techniques and the attempt to reflect nature's subtle blending and shading of colors. Soft round brushes are essential, and one of the most vital techniques is cleaning the brush well between colors. Buy the kind of box that has replaceable half-pans of semi-moist color, which cuts the expense and makes attractiveness easier to maintain.

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Painting 5: Using Watercolors

Materials:
Apron
Shelf supply of white drawing or watercolor paper (6" × 9")
Supply of paper towels for use as "brush blotters"
Tray containing: a box of semi-moist watercolor half-pans in 8 colors; a watercolor brush (camel or squirrel); water jar with marked fill line; sponge.

Procedure Points:
1. Take a white paper from the supply and a paper towel "brush blotter"; add them to the watercolor tray and carry it to a workspace.
2. Fill the water jar up to the line and return it to the tray.
3. Demonstrate: dip the brush into the water, hold it over the jar until dripping subsides, touch it to the paint and move quickly to the paper; transfer the brush to the child's hand.
4. When that brushload is painted out, show the child how to change colors: rinse the brush well and blot it on the paper towel; if color shows in the blot, the brush is not clean enough.
5. If the child is very young, ask him/her to call you when finished; demonstrate removal to the drying area and cleanup of equipment.
6. For daily maintenance by the teacher, rinse the paints briefly under cold running water and blot between the pans with a paper towel.

Control of Error: water line on the rinse jar; paper towel blotter; the teacher

Variations and Extensions:

A. For older children, provide a box with a wider color range.
B. **Mixed Media:** Use watercolor as a wash for crayon, pens, or chalk pictures.

Concepts: General, 15, 16, 20

The Collage Mode

As well as introducing some new but basic skills in methods of joining and separating materials, the collage mode offers children many and varied opportunities to...

- Experiment with spatial relationships and the arrangement of parts within a whole.
- Focus awareness on shapes and textures.
- Refine discrimination and judgment in selecting materials.
- Consider art as a means for the expression of ideas and feelings.

The basic media requirements for collage are some (almost any) kind of materials to be shaped or arranged and some way to fasten them together. The idea is simple, and yet the very openness of the possibilities can lead to confusion, disorganization, and experiences completely lacking in esthetic value for children unless we consider our goals very carefully. Our organization of materials and activities in this mode can focus first on a sequence that introduces basic skills and then bring in new materials systematically, in relation to ideas.

The skills involved in separating or modifying the forms of collage materials include tearing, punching, cutting, folding,

crumpling, and rolling; the tools used can be fingers, nails or pins, scissors, and for older children may include drills, matte knives, and saws. Metal scissors for children under six are available in a 5" size with rounded tips and cushion-grip handles, in both right- and left-handed types. Test scissors several times a year to make sure they are functioning easily. Because children who are trying to master scissors get preoccupied with cutting, something to cut—templates or patterns, magazines or preprinted lines—play an important role.

Media for joining things include not only adhesives (starch, paste, rubber cement, glue), but tape, staples, paper clips, and on occasion rubber bands, string, or soft wire.

Starch works only with very thin, porous materials, such as tissue papers, netting, or organdy; store it in a covered container and apply it with a brush. Starch collage provides a good bridge from painting activities.

Although library paste is probably the most frequently used adhesive because it is smooth, washable, and serves well with a variety of papers and cloths, it also causes the product to shrink or curl as it dries (a coating of white glue on the back of background paper will usually straighten it out again and keep it that way). Store it in small covered containers (small pill vials or empty plastic film cans) and apply with fingers or a small brush. Other types of paste, such as flour and water, wheat paste, or vegetable glue, can be used, but tend to attract insects.

Rubber cement doesn't cause curling and can be used to attach many things that won't work with paste; however, it costs more and dries quickly. Purchase a can of rubber cement solvent for thinning the stuff in the bottle when it gets too thick. Small individual jars with a brush attached inside the lid can be refilled from a larger container (retards drying out, is more economical).

Vinyl white glue requires careful manipulation and an apron to protect clothing, but is an excellent adhesive and dries clear. It can be stored and applied from a small squeeze bottle or a cleaned-out nail polish bottle. It can be thinned with water and painted on with a brush to preserve surfaces and give them a semi-gloss look.

Most basic skills can be introduced as separate exercises, each set up on its own tray or in its own space, and with its own paper supply. But at some point the direction of activity can be structured through ideas, the children can handle more freedom and flexibility in selecting materials, and the collage area will need expansion into a different sort of organizational arrangement.

Paper is the most important single ingredient in collage work with young children, usually selected by them for its color. Keeping it neat and accessible may not be particularly easy, but storing trimmed scraps, 6"×9" and 9"×12" sizes in vertical file folders according to color seems to be feasible in terms of both space and order.

Many kinds of scrap material have collage potential; most of what you collect should be stored out of sight, so that shelf supplies offer reasonably limited quantities. New items should be brought to the group's attention, their shelf location made clear, and their possibilities and characteristics perhaps discussed. Older children enjoy participation in collecting and classifying "found" materials.

Whatever you include, once 'found material' goes to the shelf it must be categorized in some way, or an overall effect of disorder and an avoidance by the children will result. Found materials can be sorted by color, of course, but a more interesting way is to classify them according to their design possibilities.[27] A limited selection within each of following categories is recommended, at any one time. Each category can be represented by a large tray; on it can be kept a labeled container for each subject (the narrow "divider tray" type of box in a 3"×7" size works well).

Tray 1: Spots and Shapes

Box A: Circles
Box B: Rectangles
Box C: Triangles
Box D: Others (free forms, magazine cutouts)
Box E: Not Paper (sequins, pebbles, buttons, beads, acorns, bottle caps, washers, etc.)

Tray 2: Lines

Box A: Paper lines (strips of various widths, lengths, colors, weights)
Box B: Free lines (strings, yarns, ribbons)
Box C: Stiff lines (toothpicks, reeds, ice cream sticks, skewers, dowels)
Box D: Controlled lines (pipe cleaners, florist wire)

Tray 3: Patterns and Textures

Box A: Solids (cloth, wallpaper—maximum size about 5"×5")
Box B: Patterns (cloth, wallpaper, gift wrap)
Box C: Roughs (corrugated, sandpaper, waffled, bark)
Box D: See-throughs (tissue, waxed paper, cellophane, film, netting, screen)
Box E: Others (cotton, feathers, shavings, small seashells)

Tray 4: Forms and Bases

Box A: Styrofoam (trays, sheets, blocks, chips)
Box B: Boxes (small ones)
Box C: Wood (wood turnings, scraps)
Box D: Others (yarn cones, spools, reels)

The following sequence of exercises introduces basic collage skills, moving toward the use of ideas as activity structures.

Collage 1: Joining with Starch

Materials:

Apron...Shelf supply of 6"×9" medium weight paper...Tray large enough to provide a working surface and hold the following:

Covered container of starch
½" flat brush
sponge
Container of pre-cut tissue paper in random shapes and a variety of colors
Water jar (if no sink is available)

Procedure Points:

1. Put on apron, select a background paper, carry tray to a table.
2. Choose some papers to lay on the background sheet; overlap some of the pieces; experiment with arrangements until you find one that pleases you.

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(Continued from page 29)

3. Remove the lid from the starch and use the brush to apply it, holding the tissues in place with the other hand and making sure tissue gets thoroughly wet so it sticks to the background. Look for any starch drips or pools and brush them out.

4. Take your paper to the flat drying area; wash brush at sink and wipe spills on tray; return material to its place.

Control of Error: Use of the tray as a work surface; the teacher.

Variations and Extensions:

A. Light and Dark: try light tissues on a dark background or vice versa.

B. See-through: Fold waxed paper in half, use starch and tissue on one half, then fold the other half over to seal tissue in between.

C. 3-D: Crumple some of the tissue before attaching (make "flowers" by holding paper in center and crushing edges upward).

D. Use starch to attach other materials (netting or lightweight cloth).

Concepts: 10, 15, 16, 21, 22, 23, 26, 30

Collage 2: Tearing and Taping

Materials:

Tray containing small box of 1" × 2" construction papers in three harmonizing colors (e.g., red, yellow, orange) and a desk-type dispenser of cellophane tape.

Shelf Tray 1 (Spots and Shapes) with its containers

Procedure Points:

1. Explain the purpose of the demonstration: to show a way to separate paper into pieces or shapes, and another way to fasten papers together.

2. Take the tray to a table.

3. Choose 6 of the small papers in various colors. Tear each one into two pieces. Mix up the pieces, then fit them together in some way to make a design.

4. Lift the end of the tape up from the cutting edge of the dispenser and pull it out about one inch. With the forefinger of your other hand, press the tape down against the cutting edge and hold it. With the hand that is grasping the end of the tape, pull down to tear off the piece.

5. Center the piece of tape above the place where two edges of paper come together. Press one end down, then smooth your fingers along the tape to the other end.

6. Repeat this process until the pieces of your "mosaic" are all joined together.

7. Point out the Shelf Tray for Spots and Shapes; extra (unused) pieces may be stored there. (If one wishes to do only tearing, he may contribute shapes to the Tray; if one wishes to do only taping, he may take pieces from the Shelf Tray to use.)

8. Explain that the tape may also be used for mending other papers that get torn or ripped by accident. Put away your mosaic and the tray.

Control of Error: Counting the papers, tearing each paper into two pieces, using both hands to separate the tape, labels on the Shelf Tray containers.

Concepts: 6, 8, 9, 10, 21, 22, 23

Collage 3: Punching and Pasting

Materials:

Shelf supplies (4 each?) of:

Punching Mats: a 6" square of smooth-pile carpet and a nail or map pin attached by a 12" string, tied around the head of the nail at one end, and through a hole and over the edge of the carpet at the other end.

Small trays (4" × 6" or big enough to hold pasting).

A desk-drawer divider tray with covered paste cups, paste brushes, mats, and small (2" × 3") sponges.

A supply of inset-size construction paper (5½" square) in two colors (or light and dark shades of the same color).

The metal insets (or a different type of template).

Procedure Points:

1. Explain the purpose of the demonstration: to show another way to separate paper into pieces—and to fasten papers together.

2. Take a paper from the supply in one of the colors; go to the inset shelf, put the paper on a tray, and choose an inset and one pencil. Sit at a table to trace the inset (frame only) onto the paper; then put away the inset, pencil, and tray.

3. Bring a punching mat from the art shelf. Lay your paper on the carpet; hold it still with one hand. With the other, pick up the nail like a pencil, and punch a hole on the outline of the shape. Punch another hole very close to it, and another, proceeding all the way around the outline. Lay the nail down.

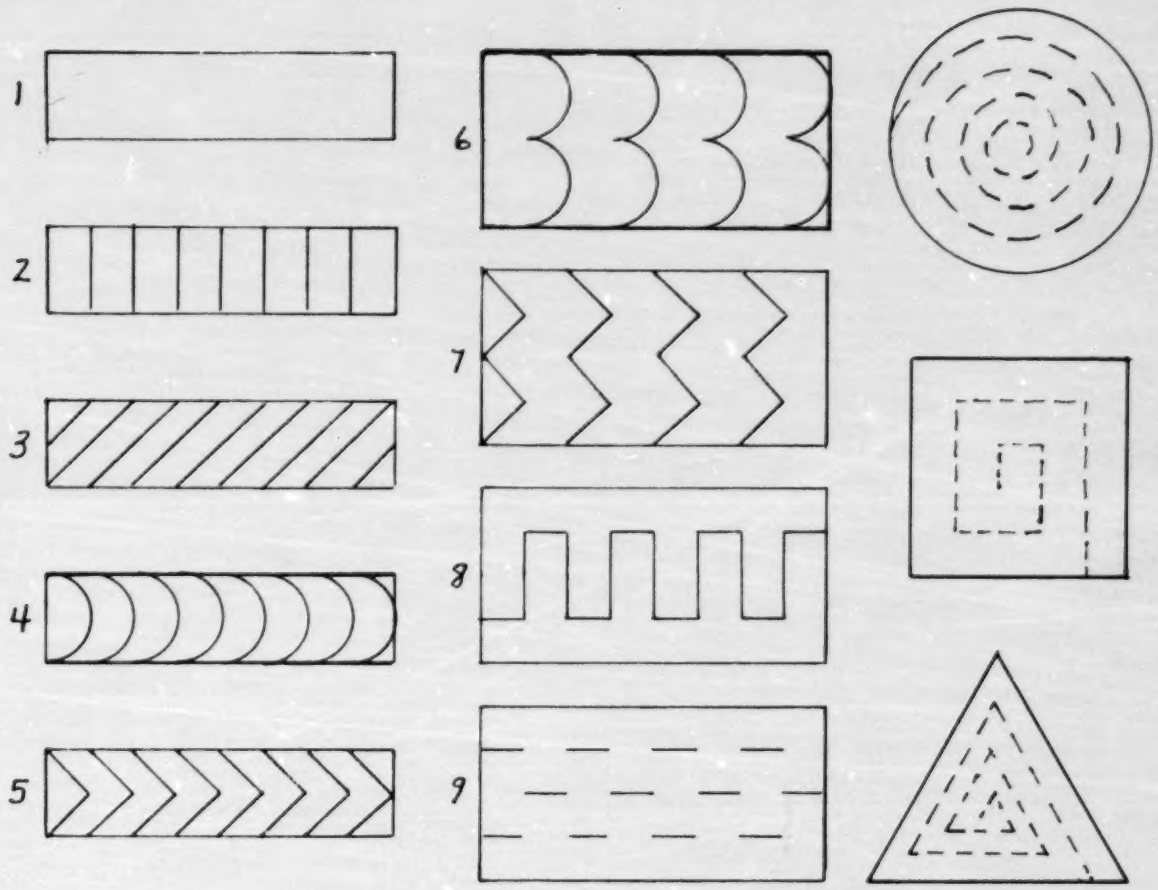
4. Using both hands, wiggle the shape gently until it separates from its paper frame.

5. Return the punching mat to the shelf and assemble pasting materials on a small tray: paste cup, brush, mat, sponge. Add a paper square of the second color.

6. Lay the paste mat on the table and an edge of the "frame" onto it. Uncap the paste and use the brush to apply a strip of paste around the edge of the "frame," turning it when needed to keep the edge on the mat.

7. When the edge is pasted, rest the brush in the paste cup and pick up the contrasting square of paper. Match its corners to the frame and press down around the edges. Turn it over to admire the effect, then turn it back again.

Figure 2: Cutting Strips and Mazes



8. Put the punched-out shape on the mat; apply paste around the edges, center it (or not) on the blank side of the colored square, and press it down. Show that the paper is decorated on both sides.
9. Use the sponge to wipe traces of paste from the mat and table and to wash out the brush at the sink (it must be rubbed well to remove all the paste, then squeezed to remove excess water). Put all materials away.

Control of Error: Completing one phase at a time; the teacher

Variations and Extensions:

Using paste tools for other collage work; punching out other geometric and free-form shapes for the Shelf Tray.

Concepts: 8, 9, 10, 17, 23

Collage 4: Cutting

Materials:

Shelf supply of:

Scissors (in rack or basket)

The small trays (same as for pasting)

The cutting cabinet: a small cabinet with numbered drawers, each of which stores one type of cutting strip (1" × 4" strips of stiff colored paper, such as card stock). (1) Plain (2) straight lines (3) diagonal lines (4) curved lines (5) points (corners) (6) scallops (double curve) (7) zigzags (double point) (8) and (9) lengthwise lines, or whatever tricky cutting you can think of! Print a supply of strips with duplicating machine or copier and cut them to size; add drawers gradually.

Procedure Points:

1. Take a paper from the cutting cabinet (drawer 1, plain, for snipping); put it on a small tray and add a scissors.
2. At a table, pick up scissors; verbalize where to put your fingers: thumb and third through the loops, second underneath to help squeeze them closed. Demonstrate opening and closing the scissors.
3. Tell the child it is easiest to control the scissors if they are pointed straight ahead (if you want to change direction it is easier to turn the paper than to cut sideways).
4. Pick up the cutting strip with your other hand and hold it firmly, above the tray. Open the scissors wide and put the paper "all the way down their throat," at a right angle to the blades. Close the scissors quickly to snip off a piece.
5. Invite the child to try it; guide his hands, especially at the quick-snip stage (most beginners close too slowly so that the paper tends to bend, rather than cut).

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(Continued from page 31)

6. Be sure all the cut pieces are on the tray. Sort them into Shelf Tray 1, or use them for a pasting collage.
Control of error: The teacher

Variations and Extensions:

A. Provide preprinted shapes, magazine pages with fairly small pictures of people or objects, and scissor mazes to cut.

B. Introduce Shelf Tray 3, Patterns and Textures, for practice in cutting different weights of paper or cloth.

Concepts: 2, 4, 6, 8, 10, 23

Collage 5: Using a One-Hole Punch

Add a tray containing a one-hold paper punch and 3" × 5" construction papers in two colors, one to be punched and the other to be pasted on as a background. The dots can be added or stored in Shelf Tray 1.
Concepts: 2, 9, 10, 21, 23

Collage 6: Using Templates and Patterns

In the area for cutting materials, add a shelf container for templates (negative shapes to trace) and one for patterns (positive shapes to trace), to be used for cutting practice and collage making; store some pencils nearby. Make your templates out of soft-plastic coffee can lids by drawing on the shape, then cutting it out smoothly with a sharp scissors. Use posterboard for the pattern shapes. Insets from the geometry and botany cabinets can be used for this purpose too, of course, with the homemade templates and patterns offering seasonal or thematic symbols (Halloween witches and cats; Thanksgiving turkeys; Christmas stockings, trees, candy canes; Hanukkah dreydls and candles; Valentine hearts, etc.).
Concepts: 1, 2, 6, 7, 9, 10.
Note: At this point the shelf supply of colored papers in folders should be introduced.

Collage 7: Stapling: Lines into Circles

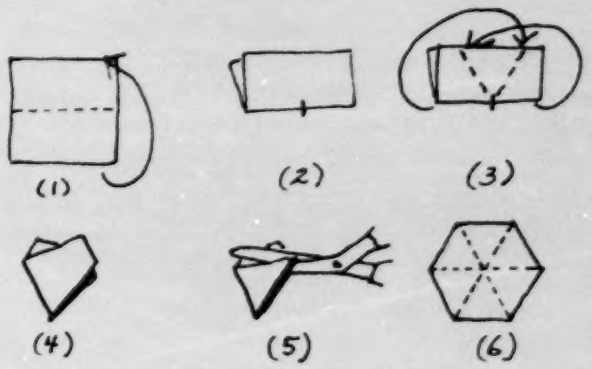
Introduce the stapler for child use, along with Shelf Tray 2 (Lines—start with the container of paper lines only). Demonstrate both use of the stapler and how to bend a paper strip into a circle, overlapping the ends and stapling them together. Suggested applications: making paper chains; making headbands or crowns to decorate.
Concepts: 5, 7, 24, 25

Collage 8: Folding Patterns with Paper Clips

Recommended for the preschool child: previous experience in the practical life area, with folding and with a paper clip exercise (use the oversize, colored plastic kind).
Materials:
A tray containing:
- A container with 2 standard size paper clips
- A supply of 6" tissue paper squares (white)
- Scissors
- A folding pattern

How to make a folding pattern: Most young children can manage to fold a paper into halves and even fourths on their own, so this exercise shows folding a paper using a concept of thirds; it is suitable for cutting snowflakes (all snowflakes have six sides, though the pattern of each seems unique). Make your folding pattern from tagboard: (1) Cut a 6" square and fold it in half. (2) Find the midpoint of the folded edge. (3) Now use that as a pivot point to fold each lower corner upward to the place on the top edge that will create three equal parts (4). (5) Use scissors to trim straight across the top edges. (6) Unfold the pattern (now it's a regular hexagon) and mark the folds on both sides with dotted lines. Put paper clips at the top and bottom edges and draw around them to make guide marks. (See Fig. 3).

Figure 3: How to Make a Folding Pattern



Procedure Points:
1. Place a piece of tissue over the folding pattern so that it is covered, with top and bottom edges even (the edges with guide marks).
2. Hold the pattern and paper together securely with one hand and put on the paper clip with the other; push it down as far as it will go. Do the same at the other edge.
3. Fold pattern and paper together from bottom to top along the prefolded horizontal line; then make the other two folds. Press the folded edges to insure clear creases in the tissue.
4. Pick up the scissors and cut off the edges of tissue that are sticking out at the top.
5. Unfold the pattern; remove the paper clips carefully and then refold the tissue along the crease marks.
6. Use the scissors to cut out small shapes along the folded edges.
7. Unfold again and view your snowflake. (Snowflakes make an attractive display taped to a window or stapled to a bulletin board over dark blue or black background.)
8. Gather all the scraps and throw them away; put away the materials.

Control of Error: The folding pattern

Variations and Extensions:

Other folding patterns (halves, fourths, various geometric shapes, accordions); products can be contributed to the "See-throughs" box on Shelf Tray 3 for use in collage work.
Concepts: 1, 6, 9, 10, general

Collage 9: Using Other Adhesives

Introduce the use of rubber cement (or white glue in a nail-polish bottle—wear an apron) for attaching "free lines" from Shelf Tray 2 (yarn, string, ribbon). Hold your "line" above the background paper and drop it to see how it wants to go. Try it several times (or arrange it as you wish), brush a line of the adhesive as close to it as possible, and press the "line" into the adhesive. Add one other material if you wish, to illustrate a "Two-Item Collage," or add other lines for a "Line Family" picture.

Concepts: 7, 9, 21, 22, 23, 25

Collage 10: Using a Theme

Once the preceding basic skills have been introduced and at least the first three Shelf Trays are available, give brief introductions to the group now and then of ideas or themes for collage work; a collection of samples with titles (or just the titles, if you prefer) can be kept on the shelf to motivate choices.

Ideas for paper collage:

- A Color Family: the child selects a colored paper background, then selects items from the Shelf Trays that are the same color.
- A Shape Family: Provide background paper in a geometric shape; child prepares or chooses collage pieces in that shape, varying color and size.
- A Design Family: Focus on forms, lines, patterns, or textures.
- "Property" Collages: Big/little, soft/hard, long/short, old/new, dark/light, positive/negative, nature/manmade, etc.
- See-Through Collage: Starch or white glue and waxed paper; paper strips with no background; folded and cut "negative space" paper.
- Memory Collage: Express your idea or memory of a person, place, event.
- Mood Collage: Incorporate magazine cutouts to make a picture of feeling happy, angry, sad, scared, excited, busy, bored, etc.
- Dream Collage: Start with a magazine cutout or drawing and add other elements.
- 3-D Collage: Curl paper around your finger or a pencil or paste an accordion-folded piece between figure and ground to make things "stand out"; used sculptured cardboard (pieces of egg carton or other molded paper); etc.
- Mixed-Media Collage: Use paints or crayons in addition.
- Collage Masks: On paper plates or large grocery bags.
- Collage Puppets: On carboard tubes or paper bags.

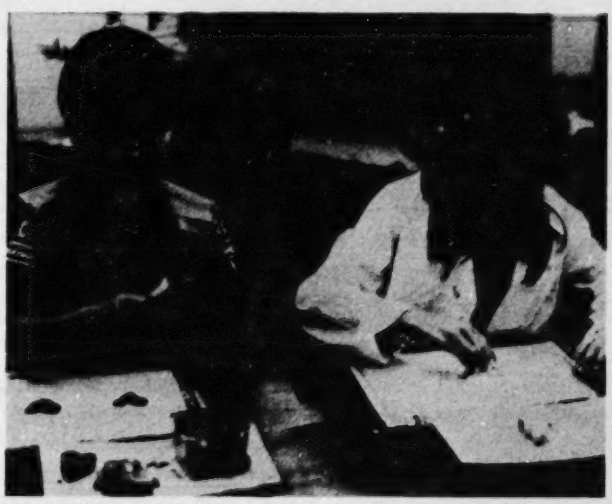
Assemblages, Stabiles, Mobiles:

- Cover a surface by gluing on materials to give design and texture to a small box or can.
- Combine two boxes in some way (present *how* as the challenge and discuss possibilities).
- A one-material stabile (e.g., all wood, all styrofoam, all cardboard).
- A two-material stabile (e.g., dowels and paper strips, styrofoam and toothpicks, sticks and string, paper strips and cardboard tubes, etc.)
- Mobiles on a theme: Unidentified flying objects; shapes; a set of symbols that go together (e.g., music, math, months of the year, foods I like, etc.). Mobiles are difficult to do well and should probably be reserved for the oldest children (10-12). They require a place to hang during construction. Mobiles have two basic elements: the structure itself and the shapes or motifs. The structure can be made of dowels ("/," florist stakes), soaked reed (for bending) or soft wire, and string (or very fine jeweler's wire) to attach the motifs and suspend the structure. The motifs can be made from other collage materials, drawings, small papier mache models, etc. Some discussion of both kinesthetic and visual balance is appropriate, along with suggestions for structure possibilities (see Fig. 4).

Figure 4: Structures for Mobiles

Concepts: Almost all of them.

The Printmaking Mode



Printmaking offers the child the opportunity to...

- Experience the concept of a reversed or "mirror" image.
- Discover the design possibilities of controlled and repeated patterns.
- Predict and plan for the visual possibilities of shapes, textures, and spaces.
- Experiment with the effects of overlapping (color changes, impression of depth).

Most techniques of printmaking can be divided into three major categories: relief processes, in which the design or printing surface stands out from the block or plate; intaglio processes, in which the printing is done from ink that is below the surface of the plate (the paper is in effect em-

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bossed into the incised areas), and surface-printing processes, in which the image is printed from a flat surface, either by direct contact with a printer or with the use of a stencil (printing the negative space).

Intaglio printing requires enormous pressure, and its working processes are unsuitable for young children; but both relief and surface processes, at a simple level, are well within the realm of possibility.

All printing involves some method of transferring an image or design from one surface to another; all methods require preparation of the design or "printer," a medium of reproduction (such as ink or paint), and a way to apply the medium in order to imprint the paper.

Printers

Almost any object that is portable and small enough to be picked up, inked, and moved to the paper can be used for direct surface printing: hands, feet, fruits and vegetables cut to reveal their inner structure and texture (lemons, onions, ends of celery, cut broccoli branches), spools, jar lids, bottle caps, cardboard tubes, erasers, cookie cutters, and sponges cut into a shape. Preparing a stencil for screening, another surface process, may require more time and care, although even simple stencils or things from nature can turn out quite beautifully.

The simplest form of relief printing—rubbing (also called frottage)—requires the finding of objects or environmental surfaces with interesting textures (leaves, grainy wood, loops of string, woven mats, the floor, furniture, screening, the bottom of your sneaker).

Some objects suitable for relief printing also require only finding: old A-B-C blocks with raised surfaces, dominos, deep-grained wood scraps or seashells, the end of a spool of twine. Positive shapes are easy to cut by trimming away the unwanted parts on slabs of potato, parsnip, or carrot, and artgum erasers. When the method of making the relief printer is by building up the surface, rather than cutting away the material around the design, shapes cut from linoleum or old inner tube can be glued on a small (2-3") wood block. Negative-shape printers can be created by using a nail to scratch a design into the end of a block of plasticene clay, or by hammering a block of balsa wood down onto something hard (a key, for example), which leaves its shape indented in the wood.

If more than one color is desired for the same shape, duplicate printers will be needed.

Media

Because of its difficult cleanup and its permanence, oil-based printer's ink is not appropriate for use with young children. Although a water-based type is available, it is still difficult to use, requiring a brayer (roller) and spreading surface (glass or plastic sheet or tray) to prepare the ink for the printer. Not until the age of 11 or 12 are children likely to be both interested and able to handle this process.

Tempera in a medium-thin mix is quite adequate for children's printing needs; relief printing can be varied with the use of commercially made stamp pads, and rubbings are most satisfactory when done with the sides of peeled crayons.

Paper suitable for painting will also serve well for printing: construction, drawing, cardboard, even tissue. Smooth cloth such as muslin can also be used, especially with ink from a stamp pad.

Methods of Applying Media

Rubbings are made by placing the printer under the paper and pressing on the waxy crayon to transfer the impression.

In surface printing with the paper-to-paper method, the paint design is applied directly to the first surface, which also serves as the "printer"; the paper to be imprinted is pressed over it (with the hands, a dry paint roller, or a smooth block), and then pulled off carefully.

The use of a stencil process requires some way to apply a thin, even layer of paint to the negative space (the part of the paper not blocked by the stencil); typically the paint is forced through a screen (see Spatter Printing).

In all relief processes and in a direct surface process, the paint or ink must be applied to the printer itself, either by brushing or by dipping. To avoid the problem of too much paint by the dipping method, make your own "stamp pad" by placing a wet, fine-textured sponge into a shallow container and pouring a medium-thin tempera mixture onto it.

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Pressing the printer gently onto this surface tends to distribute the paint more evenly as well as controlling the amount.

Printing 1: Rubbings

Materials:

6" × 9" newsprint...working board
Tray: peeled crayons, kindergarten size, in container
flat, textured objects (a key, a metal coin, piece of netting, fern frond, heavy lace, etc.)

Procedure Points:

1. Put the tray and a paper on the work board; sit at a table.
2. Choose an object, place it on the work board, and lay a paper over it.
3. Pick up a crayon, turning it sideways between thumb and fingertips.
4. Hold the paper down tightly to the table with your other hand, so it is tight and smooth over the object and won't slip.
5. Starting from where you are holding the paper, stroke away from the hand with the side of your crayon; when you reach the edge of the object underneath, stop, come back to the paper near the "holding hand," and stroke away from it again.
6. Point out that you stroke lightly if you want a light, thin impression, and more heavily for a darker, heavier one.
7. Invite the child to choose a crayon and help to get his "holding hand" into position; ask him to put his paper and the material away when he is finished.

Control of Error: The teacher

Variations and Extensions:

A. Use light colored paper with dark crayons and vice versa.
B. Make one impression, then move the paper slightly and change colors for multiple impressions of the same "printer."
C. Invite the child to make rubbings of surfaces in the room.
D. Add a wash of thinned watercolor or tempera by sponging it onto the paper. Children like "mystery pictures," making the rubbing with white crayon and adding a dark wash.
E. Take a "rubbings walk" with a small group of children, larger papers, and a portable box of crayons; record the textures of things you pass along the way.

Concepts: 1, 2, 3, 12, 20, 26, 27

Printing 2: Pulling a Print

Materials:

Tray with a lipped edge, containing:
3 squeeze bottles of tempera colors
Sponge
White paper, 12" × 18", folded in half
An apron

Procedure Points:

1. Put on an apron and take the material to a table.
2. Without unfolding the paper, show the child how to dribble paint from the squeeze bottles; encourage him to leave some white space in between the colors.
3. Unfold the paper, paint side up; then fold the blank side at the crease so that it covers the paint side.
4. Press the paper firmly, without rubbing (use hands or a smooth block).
5. "Pull" the paper open carefully to reveal a symmetrical print.
6. Take the paper to the drying area, sponge paint traces from the tray, and put away the materials.

Control of Error: The teacher; the pre-folded paper; the self-contained tray

Variations and Extensions:

Pull prints from fingerpaintings or other paintings while they are still wet; ask the child to paint his name and pull a print from it, then discuss the result and try reading it in front of the mirror.

Concepts: general, color, and 21–22

Printing 3: Printing with Objects— Brushing for Surface and Relief

Materials:

Apron
9" × 12" paper
Tray containing:
paintbrush
Covered jar of thinned tempera
Container of printers (leaves and circular relief blocks)
Empty container for used printers
Sponge and damp cloth

Procedure Points:

1. Protect clothing with an apron; take materials to a table.
2. Open the paint and use the brush to apply paint to the palm and fingers of the child's non-preferred hand; invite him to finish brushing on the paint; place brush in jar.
3. Show the child how to turn the hand and press it onto paper, asking him to choose the spot where you print.
4. Invite the child to repaint the hand to make more prints, then wipe it with the cloth and wash the cloth and hands at the sink.
5. Invite the child to add prints with the leaves or the circle blocks; demonstrate applying paint with the brush, then turning the leaf or block over to print. Put used printers in the empty container.
6. When the child is finished with his design and removes it to the drying area, demonstrate cleanup: recap the paint; put the brush and sponge into the container of used printers and wash them at the sink; wipe traces of paint from the tray; put away the materials.

Control of Error: The teacher

Variations and Extensions:

A. Vary the shapes and types of printers offered.
B. Invite children to bring in "found object" printers from home.
C. Invite children to carve their own block printers with potatoes and table knives.

Concepts: general, 1, 8, 9, 10, 12, 21, 22

Printing 4: Printing with Objects— Stamping for Surface and Relief

Materials:

An apron...paper to imprint...A tray containing: sponge shapes with clothespin "handles" (cut two slits in the top surface of the sponge for attaching the clothespin)...several relief printers (reusable types)...a cleanup sponge...a container for the used printers...a homemade "stamp pad."

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Procedure Points:

1. Protect clothing with an apron, take a paper, and take materials to a table. (Either a painting board or a half-sheet of newspaper can be used to protect the table.)
2. Put the paper on the painting board, with the "stamp pad" near the paper but out of the way of moving arms.
3. Invite the child to choose a sponge shape; place it on the "stamp pad" and press down firmly.
4. Decide where to locate the first print on the paper; then move the sponge quickly to that spot and press; lift straight up, without moving the sponge around on the paper. Repeat, or put the printer in the empty container until needed again.
5. Ask the child to call you when ready for cleanup: remove the paper to the drying area, sponge traces of paint from the tray and work surface, wash printers and cleanup sponge at the sink, and put all materials away.

Control of Error: The teacher

Variations and Extensions:

Vary the printers offered, and increase the level of difficulty by adding a color variety. Use this printing technique to make products, such as greeting cards, giftwrap paper, or placemats.

Concepts: general, 1, 8, 9, 10, 12, 21, 22

Printing 5: Spatter Printing

Materials:

To avoid a lot of trips to carry materials—and the shelf space used up by them, you may want to set up a spatter printing station, so that all materials may be left in one place

Tray containing: a painting frame (a wooden frame approximately 2" deep, covered on one side with stiff, small-mesh wire screening tacked to the edges with wood staples, so that it is fairly taut)
Paper to fit the frame
Apron
Heavy cardboard mats (for use as workboards)
Tray containing:
Toothbrush with flat-edge bristles
Covered jar of thinned tempera
Supply of paper stencils or things for use as stencils (grass, leaves, pebbles, or any small, flat objects that can be thrown away after use)

Procedure Points:

1. Protect clothing with an apron and set up the materials: paper on cardboard mat, trays near the mat.
2. Arrange the stencil (or design your "stencil" with objects) on the paper and cover it with the frame, screen side up.
3. Uncap the paint and pick up the toothbrush.
4. Holding the frame in place with the other hand, dip the brush into the paint and rub the bristles quickly back and forth across the screen. Continue until a thin spatter of paint covers the paper underneath; lay the tooth brush on the frame tray.
5. With one hand on each side, lift off the frame and put it on its tray.
6. The stencil should stay in place until the paint dries, so carry the cardboard mat (paper, stencil and all) to the flat drying area.
7. Sponge up any traces of paint on the table; wash the frame and toothbrush at the sink; return all materials to their places.

Control of Error: The teacher

Variations and Extensions:

A. Invite the child to design and cut his own paper stencils.

B. Try two-color processes (both colors on wet, or let the first dry before adding the second).

C. Combine spattering with drawing (cover the drawing with a paper shape to preserve it).

Concepts: general, 2, 9, 12, 15, 16, 21, 22, 23, 26

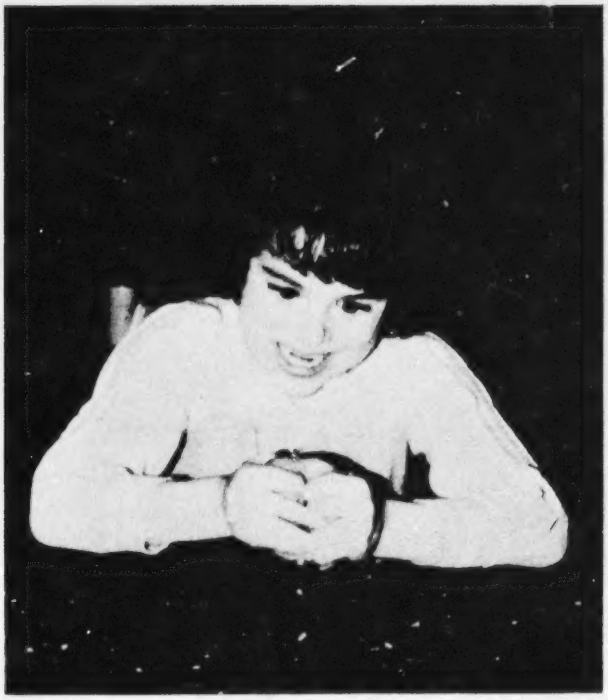
The Shaping Mode

The responsive, direct, tactile qualities of clay and other plastic materials offer a soothing pleasure that makes the activity of shaping its own reward. The child also has opportunity to...

- Observe and compare the properties of plastic media.
- Develop muscular strength and control in hands and fingers.
- Experiment with three-dimensional forms and expression.

Working surfaces ("clay boards") of asphalt or linoleum tile offer a nonabsorbent, no-stick surface, essential for moist clay so that it can be turned.

Storage for all types of clay except plasticene should be airtight. For the shelf, the kind of plastic boxes used to store



leftovers in the refrigerator, with lids that seal, make good clay or play-dough containers.

Plasticene

A non-hardening, oil-base clay, plasticene is often preferred by beginners because it doesn't stick to hands (unless it's too old), has a smooth texture, and is easy to clean up. Although it's less pliable and responsive to shape than moist clay, it is better for relief maps and models because it doesn't shrink. Somewhat stiff when cool, it quickly warms in the hands or in sunshine.

Materials:

A one-pound ball of plasticene in a plastic container accompanied by a clayboard (or a mat of plastic or oilcloth).

Play Dough

A complement rather than a substitute for moist clay, play dough is more pleasant to the touch of the inexperienced and serves as a good preliminary material. Play dough tends to be grainy rather than elastic, but lends itself to the use of tools (rolling pin, cookie cutters, garlic press, relief printers). The commercial variety dries out quickly, though all types of dough must be kept in airtight containers to retard drying. Because it *will* dry, however, you may sometimes want to invite children to preserve their products. In general, the more salt in the mixture, the faster it dries and hardens; dough made with cornstarch rather than flour will more successfully dry without cracking.

Homemade Dough

Mix: 5 parts flour Liquid starch (1/3 cup per lb. of flour)
1 part salt Dry tempera (2 heaping T. per lb. of flour)
Add water to desired consistency, stir and knead to mix well. Keeps best when refrigerated nightly. A half-teaspoon of alum per cup of flour will extend the life of homemade dough from two weeks to several months. A little salad oil will make it more elastic. Children enjoy participation in making the uncooked kind of play dough, and it is possible to set up play dough making as an individual exercise.

Cornstarch Dough

Mix: 3 cups salt 1 cup water
Heat until the salt dissolves, stirring occasionally (about four minutes). Remove from heat and slowly stir in: 1 cup cornstarch.
Knead the dough and add more water if necessary. "Cookies" made from this mixture will dry overnight (or in a few hours at the lowest oven temperature); they can then be decorated with tempera or acrylics. (Don't forget to put a nail hole at the top if you wish to hang them up later.)

Materials:

Clayboard or mat, small tray of tools, airtight containers for dough.

Moist Modeling (Potter's) Clay

Both self-hardening and suitable for firing, this clay is "the real stuff." Separate individual portions by cutting with a fine wire; store the main supply in a double plastic bag or small plastic garbage can with a tight lid. Consistency is very important (pliant but not squishy), and moisture must be restored after each use. Dried clay can be revived by soaking small pieces in water for a few days, draining off the water, and spreading out the clay on an absorbent surface like unfinished wood covered by a cloth; it will soon be ready to roll up and use again. Clay that is too wet can be given this same drying-out treatment.

When you know in advance that you will want moist clay products to dry, add one part yellow dextrin (from the drug-

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gist) to twenty parts of clay (about one teaspoon per pound) and knead it thoroughly. This mixture dries quickly (best in thin pieces) and is almost as strong as fired clay, though not waterproof. Mix only what you will use right away.

Moist clay seems to stimulate a need to share observations and a flow of conversation may result; if you set it up in a special area of its own, as advised, then it's wise to provide for use by two children at once (to discourage traipsing back and forth in order to talk to someone).

Materials:

- A specified washable-floor area with marked boundaries (use tape)
- A clay table covered with heavy oilcloth or plastic
- Two chairs or stools
- Two clay boards
- Two balls of clay in airtight container
- Two aprons
- A stiff clothes brush
- Putty knife or plastic scraper
- Small dustpan and floor/table brush
- Pail and Sponges

Helping Children with Clay Work

The experts seem to agree that models and demonstrations of production are largely inappropriate, and for this reason there are no written exercises with clay. Both limits and cleanup procedures, however, must be communicated clearly. While it is probably true that most people, including children, will discover what works with plastic materials through experience, as the teacher observes their progress with moist clay, occasional suggestions may be helpful; a list of some possibilities is described under "Techniques."

1. Limits: Be clear about where each type of material may be used, and that clay of all kinds should stay off the floor and other people—and out of your mouth.
2. Techniques:
   A. Turn your clay around now and then while working (or walk around it), to view it on all sides.
   B. Ways of molding include rolling, making balls and sticking them to one another, or pinching or pulling out parts before finer modeling.
   C. Slabs or "pancakes" flattened with a roller can be relief-printed with fingers or various objects (things from nature turn them into "fossils").
   D. Pieces can be attached to each other by welding and by the use of slip, an adhesive mixture of clay and water.
   E. "Pots" can be fashioned by indenting a ball with fingers, or by coiling (use slip to seal).
3. Putting Away: Use a piece of clay to collect crumbs; roll the clay into a ball and be sure the lid of its container is on tight. Moist clay should be wedged before balling—have its air bubbles removed by repeated slamming and slapping on the work surface. Older children can be shown how to poke a hole in the ball of moist clay with their finger and fill it with water to replace moisture lost during work.
4. Cleaning Up Moist Clay: Clay on hands, aprons or clothing dries quickly and can then be brushed off. Clean up every bit of clay possible before adding water to the situation: use a putty knife to scrape crumbs into a pile and pick them up in a dustpan. Check shoe soles before leaving the clay area and scrape and brush them if needed. Scrub the table, then dry it with a wrung-out sponge or squeegee. Avoid pouring water from clay cleanup down the sink; it will tend eventually to clog drains.

Papier Maché

Because papier maché work emphasizes product making and tends to require quite a bit of forethought and patience, it is better suited for children past the age of five or six, who can tolerate the distance necessary between process and product.

The pulp method can be used for modeling small objects or beads for jewelry making, or for building up thin layers over a base (with drying in between) in making slightly larger things, such as masks, puppet heads (use a cardboard tube base to insure space for fingers), or relief maps. After they dry, these products can be sanded smooth and painted.

The material for papier maché pulp can be purchased as a mix of shredded paper and paste powder ready for adding water, or the children can prepare it themselves. Even if stored in an airtight container, pulp will keep only a couple of days, and it works best when freshly mixed.

Pulp Recipe:

2 double sheets of newspaper
boiling water
4 Tbs. wheat paste
1⅓ cups cold water

Unfold the newspapers and tear the sheets into small pieces; place them in a pan or other heatproof container and pour on boiling water to completely cover them. Mix the wheat paste and cold water; stir the papers until they form a pulp, then stir in the paste mixture. Let it cool before you knead it with your hands until it is well mixed. The addition of a little powdered clay gives a finer texture and greater elasticity.

The strip method of papier maché requires somewhat more patience and dexterity, but is better suited to larger sculptures. Start with a core made of crumpled or rolled newspaper taped together in the general shape needed, shaped poultry wire netting, or cardboard cartons. One layer at a time, cover the structure and mold details with strips of newspaper dipped in water-thinned white glue or a wheat paste mixture. A strong surface for the final layer can be achieved by using rolls of bandage gauze charged with plaster of Paris.

Masks—A Papier Maché Project

Materials:
Apron

Tray 1 containing:

Single sheets of newspaper
9" squares of tissue paper, folded in fourths
A black crayon
A felt-tip marker
Scissors
Container of (deflated) head-size balloons
Container of papier mache pulp
(Opt.) egg-carton cups
A damp cloth

Tray 2 containing:

3 paintbrushes
Small jars of acrylic in 3 or more colors (or tempera with white glue added)
A nail
String (12" lengths)

Recommended:
A special table where materials are kept.

Procedure Points:

1. Put on apron, spread newspaper (as work surface).
2. Make a face pattern:
   —Unfold the tissue once (so it's still folded in half).
   —At the midpoint of the folded side, use the scissors to cut out a small triangle.
   —Unfold the paper and fit it over your face; the hole is for your nose.
   —Hold the paper on your face with one hand; with the other, pick up the crayon and use it to "draw" the bones above and below your eyes, and the place where your mouth is (or arrange for a friend to do this for you); take off the tissue.
   —Cut eyeholes and a mouth hole where you marked with crayon.
3. Blow up the balloon to about the size of your head; tie it to keep the air in.
4. Mark your face pattern on the balloon:
   —Lay the tissue pattern onto one side of the balloon.
   —Mark the edges and all the holes with the felt pen.
   —Write your name on the back of the balloon.
5. Make the first layer of your mask:
   A. Open the pulp container, take a handful and spread it over the balloon "face" in a thin layer.
   B. Leave holes for the eyes, nose and mouth.
   C. You may want to use an egg carton cup to cover the nose hole and help you build up the nose.
6. Replace the lid on the pulp; wipe your hands, and let the layer dry.
7. Add at least two more layers, letting each one dry.
8. Think about a design for your mask, then paint it in three colors (one for the background, two for decoration). When the paint is dry, remove the balloon—and try on the mask. You can punch a hole on each side and use string to tie it on.

Plaster Casting

For children of this age range, the use of plaster of Paris must be done with the closest teacher involvement, since it sets so quickly that mixing and pouring must be done with great speed and care. These ideas might be considered for gift making on very special occasions.

1. Use a box of damp sand; invite two children to make handprints; then mix approximately 3 cups of plaster of Paris (directions on package) and fill the handprints. When the plaster begins to set, scratch in the child's name or initials and the date with a toothpick.
2. In sand or a slab of clay, make a shallow depression and imprint it with objects to give an interesting textural design. Mix and pour the plaster. The resulting "relief" can be painted if desired (which will greatly change its appearance).

Applications

Because children do develop their art skills between three and twelve, especially with access to materials and interested, understanding adults, the same sort of application results in very different-looking products at different stages along the way. Here is a brief list of ideas for making things that give children opportunity to use their skills. Many of these projects can interact with language, social studies, and science.

- *Cards* can be made with drawing, painting, collage, or printmaking materials; their themes and messages can be seasonal or just friendly.
- *Decorations* may make an environment more attractive or give it a temporary change in character, but they also make it personal—one reason, I think, why children participate in making decorations with such enthusiasm. Some easy ones are chains and lanterns of colored paper, a new symbol each month to hang on a "year-round tree" (either a real dried branch set upright in a can of plaster, or a paper tree on the bulletin board).

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- *Murals* tend to get more sincere contributions, especially from older children, if they are constructed by putting together sections prepared by individuals. The artist can be identified and the work taken home when it comes down from the bulletin board. Almost any theme is capable of stimulating enthusiasm if the teacher provides plenty of information and directs children to appropriate materials.
- *Puppets* from paper plates on a stick or paper bags, for the younger set, through papier mache for the oldest encourage talk, interaction, safe expression of feelings, or dramatizing stories and situations. They can be decorated in as many ways as children can think of.
- *Costumes* (for any occasion) can range from the simplicity of a decorated headband or paper bag with eye- and armholes to a more complicated garment created with brown paper or cloth.
- *Animals and figures* are fun either as solos or as part of a special kind of environment. Painted figures for a bulletin board give an interesting 3-D effect when stapled around their edges to a backing sheet, then cut out and "stuffed" with crumpled scraps. Clay or origami figures can have their own "habitat" with a picture background folded in thirds so it stands up around them, or a 3-D environment constructed in a box.
- *Environments* can be created in bigger boxes, too; stove or refrigerator cartons, decorated as a group effort, allow for a "walk-in" trip (to a spaceship or a cave) or a diorama view (of the African veldt, days of the dinosaurs, the pond as seen through a microscope, etc.). Older children can get very inspired in planning and creating this kind of environment.

Teachers may be inspired, also, to create an art setting that is orderly yet dynamic, process-based yet aesthetically satisfying. This article began with the intent to make a statement about the potential for artistic activity in a Montessori environment—something simple yet practical. At its present length and coverage, it may say more than anyone cares to know about classroom art for young children, for a reason. As I pored over the research, the idea books, and my own and others' experience, an unexpected enthusiasm took hold and grew into an overwhelming realization of how important art really is for people who are still absorbing the world and its beauty. If the subject could do that for a "non-artist" after almost eighteen years of teaching, it's my hope that the infection will prove to be contagious.

BASIC ART EXPERIENCES: MODE VS. LEVEL OF DIFFICULTY

DRAWING	PAINTING	COLLAGE	PRINTMAKING	SHAPING
Crayons	First Level			
Felt Pens	Watercolors	Collage 1–8		Plasticene
		Basic Skills	Rubbings	
(Wet) Chalk	Fingerpainting			
	Painting with a Brush	Collage 9–10	Pulled Prints	
Extensions				Play Dough
	Painting with Other Tools	Themes	Brushing the Printers	
				Moist Clay
		Stabiles	Stamping with Printers	
Extensions	Extensions	Themes	Spatter Printing	Papier Mache
	Mixing Paints			Plaster Casting (Teacher)
	Mixing Extensions			
Oil Pastels		Themes		
	Second Level		Extensions	Extensions
Charcoal	Watercolors	Mobiles		

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Note: In "Understanding Separation," an article by Bertha G. Simos that appeared in the Winter, 1982, issue of The Constructive Triangle, the author made use in her opening paragraphs of material from *The Montessori Greenhouse Parent Handbook.* An editorial decision was made to indicate the *Handbook* material with a footnote, which did not make clear that Ms. Simos's first six paragraphs were taken from the Montessori Greenhouse guide, as were the boxed "What To Do?" suggestions at the end of her article.

The Matching Game

By Irene D. Peterson

Matching questions and answers, people with resources, problems with solutions is the intent of this column. May we help you? Send questions or suggestions to me at 66 Chicken Street, Wilton, CT 06897. Thanks. You'll receive an answer.

Q: How about some money-saving tips for the classroom? *Any* ideas will do—we're desperate!

A: Aren't we all! Are there those among us who haven't yet run out of red construction paper in January? Here are some suggestions.

Buy for materials-making after holidays. For instance, on February 15, stop by the drug store and pick up heart-shaped boxes at half-price for Valentine objects. You can even nibble on the contents for half price! Ditto for half-price sales after Halloween, Christmas, St. Pat's and Thanksgiving. Just be sure you remember where you stashed your purchases next year.

Buy in bulk from distributors when you can, for a couple of years' supply at a time. Items such as Q-tips, cotton balls, food coloring, napkins, paper towels, polishes, spray paint and snack items such as peanuts can be stored and kept ready to use as needed.

If you know people who travel on business, ask them to save you disposable items from airline trips such as small bottles and plastic trays. Travellers also can supply you with all the bar soap you'll need for the year from hotels.

Ask parents to save things for you: egg shells for grinding, bags for totin' home papers, rubber bands from paintings that can be returned and reused.

If supplies of art materials are low, consider "rationing" them. Put just enough on the tray for the number of people who may do the activity at one time. Two half-sheets of construction paper and the other requisite decorations can be enough for two children to make a greeting card without the run-on effect of "let's make it four pages and use up *all* the glitter" that sometimes mushrooms among friends. Remember, especially with young children, a large supply says "Use me all up!"

Thin liquid paint or mix dry tempera with liquid starch or detergent and a little water. It will wash out easier, also. Make your own clay or playdough.

Do shop garage or tag sales. Finding cast-off pitchers and juice glasses is a cinch, and the price is right. Trays are often available, as are flatware, napkins and linens, and sometimes records as background music.

What money-saving ideas do you have? Jot them down briefly on a post card and send them in.

Q: Do you have a source of help for parents who are discussing taking rides with strangers with their children?

A: Project Two in New York has a brochure on the topic entitled "Ice Cream Isn't Always Good" which you may have for $1.00 and a self-addressed stamped long envelope (postage .35). Send your request to Project Two, Box 5091 WD, FDR Station, New York 10150. Or telephone your local police department and see if a kindly off-duty officer will come and speak to your class or a parent group on raising the children's consciousness on the subject. There may also be slides or a film at the local library, and when you ask for them, the librarian may have other suggestions.

Q: I understand there is a way to pay students who are interning on a stipend basis that is non-taxable, up to a certain amount. How do I find out about this?

A: Student teachers and interns who are in school and involved with certain other educational ventures may exempt a certain amount of their income from taxation. For details, write to the Superintendent of Documents, U.S. Printing Office, Washington, D.C. 20402 for their brochure entitled "Tax Information on Scholarships and Fellowship Grants." It costs ten cents.

Q: Next year I'll have a blind child in my class. How should I prepare? What should I expect?

A: Anyone? Please write.

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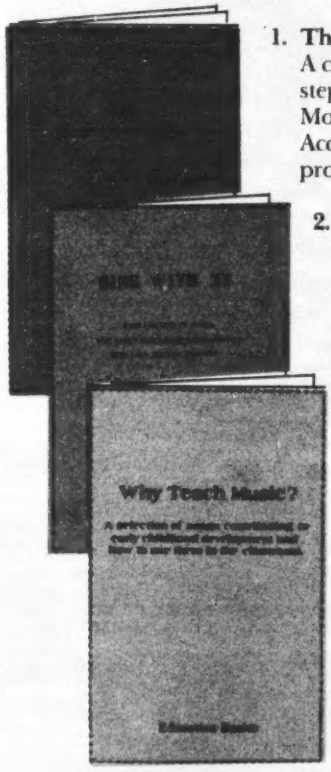

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Books and cassettes can be purchased through the AMS office.

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